

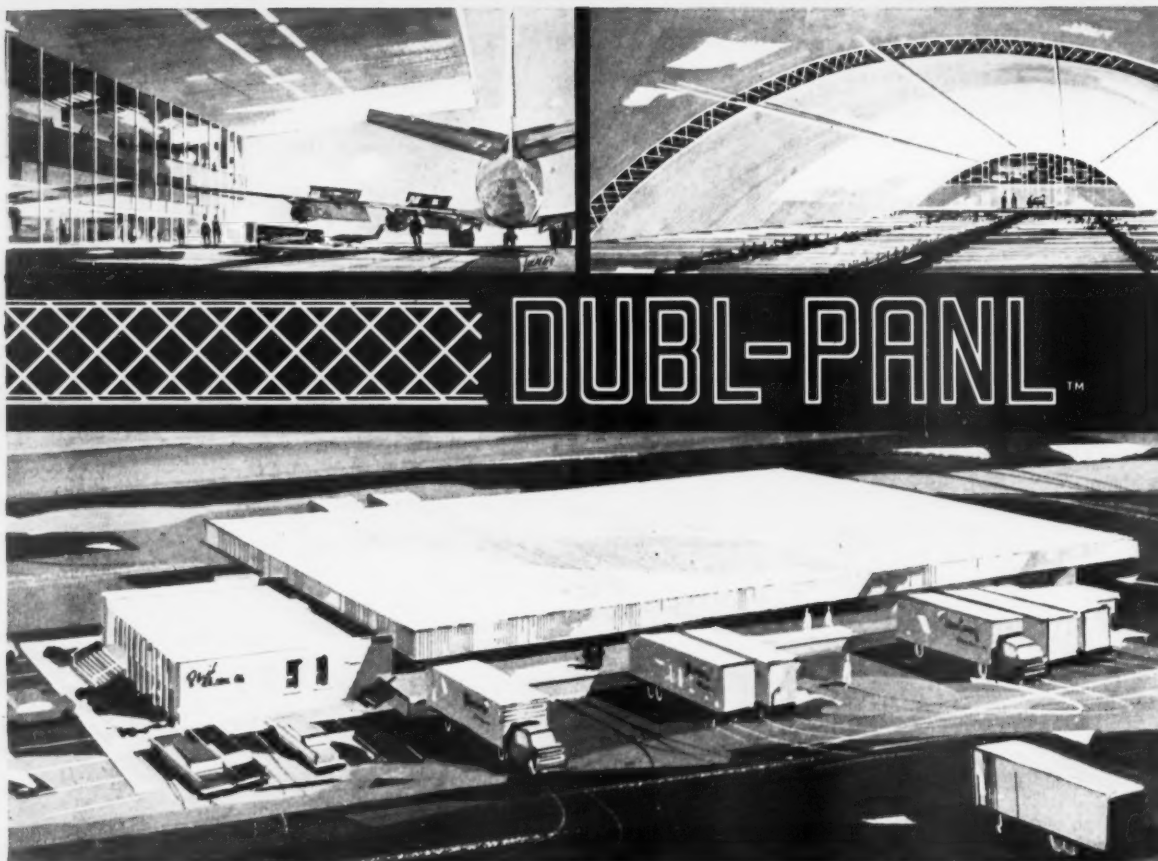
architectural
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NEWS

ARCHITECTURAL & ENGINEERING NEWS
Mailings Department



MARCH 1960 VOLUME 2 NUMBER 3



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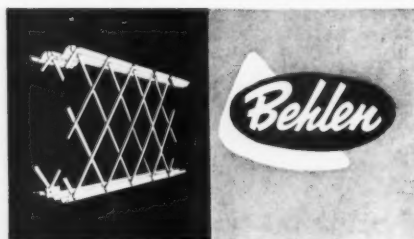
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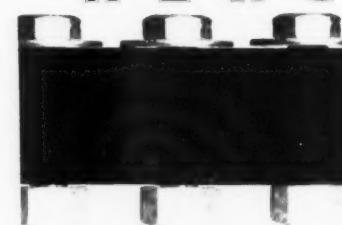
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N E W S



This month's issue emphasizes a variety of uses of steel and other metals. Tony Palladino has abstracted, in plan section, structural bolt assemblies as symbolic of many contemporary engineering techniques. Photography by M. Mancuso.

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GAZETTE

Joseph A. Diehm appointed service engineer by Eugene J. Brandt & Co., Inc., mechanical contracting firm.

Retirement announced by John A. Dickinson, chief of Codes and Safety Standards Section of National Bureau of Standards.

Bowen C. Dees appointed assistant director of National Science Foundation for Scientific Personnel and Education.

Louis A. Cutler, AIA, has joined Omaha staff of Henningson, Durham & Richardson, consulting engineers and architects.

David L. Eggers, AIA, appointed vice president of New York Chapter AIA.

Julian Clarence Levi, FAIA, of Taylor and Levi of New York, named chairman of Architects' Division of New York Arthritis and Rheumatism Foundation for 1959-60.

Philip Will, Jr., FAIA, nominated for presidency of American Institute of Architects.

C. J. Schmidt named executive vice president of J. O. Ross Engineering Division of Midland-Ross Corp. of New York.

David H. Hunt, PE, appointed chief engineer of Spencer Turbine Co., Hartford, Conn.

Louis R. Howson, PE, consulting engineer, named "Chicago Civil Engineer of the Year, 1959," by Illinois section of American Society of Civil Engineers.

Verne W. Boget elected senior vice president of Gladding, McBean & Co., Los Angeles. He is past president of Tile Council of America, former national director of Producers' Council, board member of Library of Architecture and Allied Art.

William Francis Gibbs, naval architect and marine engineer, awarded Michael I. Pupin Medal for outstanding "service to the nation," at Columbia University Club, New York.

Dr. Augustus B. Kinzel appointed chairman of Division of Engineering and Industrial Research by National Academy of Sciences—National Research Council.

T. Cortlandt Williams and Fred W. Argue elected chairman of the board and president, respectively, by Stone & Webster Engineering Corp., of New York.

Board of directors, Albert Kahn Associated Architects and Engineers, Inc., Detroit, elected as associates: J. S. Pettitt, AIA, and S. D. Popkin, architects; R. Hudson, C. M. Labunski and J. Nachbar, engineers.

Benjamin Bailyn, John Delavan, Lee Economides, Robert Lundberg, John Loughnane and Ellen Nathanson appointed as associates by Voorhees Walker Smith Smith & Haines, architectural firm of New York.

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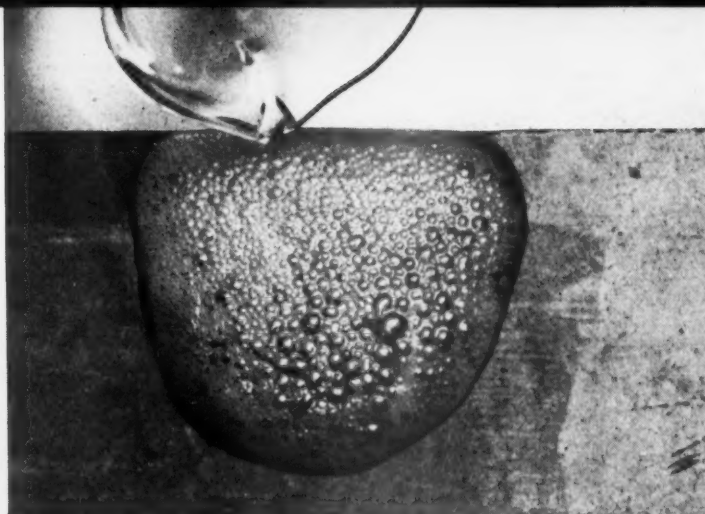
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COMMUNICATIONS

A/E NEWS welcomes the opinions of its readers. Letters should be addressed to: Editor, Architectural and Engineering News 452 Fifth Ave., N. Y. 18.

Editor:

Attached is a copy of a letter addressed to Mr. Joseph Campbell, Comptroller General of the United States. I believe the letter to Mr. Campbell is self-explanatory with respect to our views concerning the General Accounting Office reports which they have issued relating to the use of consulting engineers in the Federal Aid Highway program.

While we as consulting engineers have selfish motives in seeking to have the Federal and State governments utilize the services of consulting engineers, we have another interest equally compelling in bringing this matter to your attention. We sincerely believe that the use of consulting engineers, whose services are obtained by contract arrangements, is in the best economical interests of both the Federal and State agencies from a taxpayer's standpoint. Our basic concern is that the true costs of the government agencies performing their own engineering services be fully disclosed to the public, so that fair comparisons of these government costs can be made with the established contract awards made for consulting engineers' services.

The continued practice of issuing *ex parte* statements by government officials that Civil Service engineering is cheaper and more efficient than that rendered by engineers in private practice should be proven by facts and not unsupported opinion. We believe that whatever influence you can exert toward obtaining full disclosures of true costs of government activities will be in the best interests of the taxpaying public.

Sincerely,
Ralph M. Westcott, President
Consulting Engineers Council
Los Angeles, Calif.

Editor's note: Copies of the letter from Mr. Westcott to Mr. Joseph Campbell, Comptroller General of the United States, may be obtained from Mr. Ralph M. Westcott, President, Consulting Engineers Council, 800 West Colorado Blvd., Los Angeles 41, Calif.

Editor:

We have been a very interested reader of Architectural & Engineering News.

In the particular issue noted above (Vol. I, No. 11, November, 1959), there is an article entitled, "Planning Power Distribution," by W. C. Heinz. We thought the article was very well written and covered a very timely subject. . . .

Very truly yours,
H. Simmons, EE
Long Beach, Calif.

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FORECAST

PUBLIC UNDERSTANDING IN THE YEARS AHEAD

Excerpted comments from a speech by Lamont du Pont Copeland, vice president, E. I. du Pont de Nemours & Co., before the Public Relations Society of America, Miami Beach, Fla., November 1959.

"Looking ahead, I suppose, is one of the preoccupations of the human race, and for a great many years newspaper editors and people generally have been peering toward the horizon in an effort to see what might lie over the hill. Now it appears they have been joined by program chairmen. In the years which close a decade, the binoculars which suffice for ordinary years are replaced by long-range telescopes, and speakers at gatherings such as this are invited to describe in detail not just the months ahead, but the entire ten years to follow. I suppose the most satisfactory speaker for an occasion of this kind would be one who wore a turban and carried an oversized crystal ball. . . .

"It seems to me that the next decade will be one in which an increasingly intelligent public will not be satisfied merely with clichés and fancy phrases. It will demand to know not only what is done, but why it is done, how it is done, and what are the social and economic implications of it all.

"I do not say this is altogether a new development. To a degree, it has always been true in our nation. But while this has always been true, there seems little doubt that in the 1960's the public will be more educated, more sophisticated, more interested, and more demanding than it has ever been before.

"While all companies and institutions have problems that are not greatly dissimilar relating to the daily operation of the institution, the biggest problems of the future seem to me to lie in the field of public attitude toward not only our business institutions but our social institutions, and even our government, and the governments of others.

"The challenge of industrial and business competition, which was emphasized so much by the Soviet Premier on his recent visit to the United States, is actually a political challenge. Whether our principles of individual freedom and liberty, including our economic system, can meet the test, will determine our future.

"I am confident that we can meet this challenge, and that the strength, vitality, and imagination of American business will be a decisive factor in this contest.

The point is that this contest will be waged with industrial genius and technology as the principal weapons, and that we can win it only if there is public understanding of what stimulates industrial genius and technological growth.

"If, on the other hand, there is public misunderstanding and, as a result of either public pressure or public indifference, actions are taken which erode the strength, which chain the actions, which discourage the will to deliver the utmost, then we as a nation cannot expect to succeed against such a vigorous and bold opponent.

"These, I would remind you, are all matters of public understanding. If, because of misunderstanding, people are going to demand that we continue to use our system of taxation to penalize the incentives of the most able; if, because of misunderstanding, people are going to make it impossible to build up and increase the technological capabilities of our large corporations on account of some mistaken notions that big companies are bad; if, because of misunderstanding, people are going to demand that our economy be hampered with restraints that would serve no good purpose, from whatever source they may come; then we as a nation are going to find the going hard.

"Above all we need greater understanding at home and abroad of the economic system which we believe is the best ever devised and of the contribution of technology to our progress. We must take to the people a strong, clear case that the privately owned corporation is an invention vital to their welfare, that our economic system is the best way for a free people to bring about their own economic well-being, to support their intellectual, spiritual, and cultural aspirations, and to guarantee their basic individual freedoms.

"What are the principles that should guide us? First and most important is that we who are part of the business community, together with all segments of our society, must make every effort to strengthen our economic system. The corporation is an instrument created to multiply the individual capacities of our people and their resources for the common good. Thus, the economy must be healthy, prosperous, and growing if it is to meet the needs of our citizens. . . .

"A second principle is that those who are responsible for the management of our business enterprises must devote un-

ceasing attention to the efficiency of their operations so that the maximum benefit will reach the people. It is essential that there be continuous development of new and better products for consumers; a constant drive for technological improvements that can reduce costs, boost production, and enlarge the benefits and opportunities for employees; a stepped-up effort to meet the cost-price spiral that taps off the economic gains flowing from the economy. Business must keep its own house in order, and so long as the necessary incentives are present to reward the industrious, the capable, and the dedicated, I can see no slackening of the continuous effort at self-improvement within business itself.

"The business community must also develop a greater participation in solving the political and social problems confronting the country. I will not attempt to enter the current discussion of methods for the participation of businessmen in the political arena. It does seem obvious, however, that the representatives of business must weigh these broad, public questions in terms of the national interest and contribute to their solution.

"Let us agree on obvious national problems and debate reasonable alternatives. No one expects the business community to carry the banner at every turn, but no one will believe that business is dedicated to the common welfare if it is a consistent laggard or a disinterested bystander. To turn its back on public problems is to court disaster.

"It seems to me the proper stance for business in politics is to seek understanding, to place before the people the facts so that sound judgments may be made at the polls and in legislative halls. Power cannot be the objective of political activity. Nor will a cat and dog fight on the public stage establish a favorable climate in which business can operate. The business voice should add to rather than attempt to drown out the opinions coming from many other sources in the country.

"There are three large areas in which the idea barrier presents us today with formidable obstacles. Each of them, in my opinion, is a lingering emotional remnant of bygone days, long since eliminated as a valid doctrine, yet remembered sufficiently to cause confusion.

"The three danger areas are these: The first is the tendency to burden our economy with enfeebling restraints, either from government in the form of

controls or from labor in the form of practices which hinder the productive process. The second is the imposition of legislative enactments which will inevitably reduce the incentive to investment and to personal achievement. The third is the misunderstanding over the role of the corporation and of technological development as an instrument of accomplishment.

"The cultural lag is responsible, I think, for the tendency at times to evaluate 1959 conditions on a scale calibrated to judgments long outdated, which is rather like trying to measure nuclear particles with a schoolroom ruler. . . .

"Everyone knows, and admits, that in a dynamic economy, job assignments change continually and that for every buggy maker eliminated, ten were added to automobile assembly lines. Yet, in our subconscious resistance to this truth, we have the root of all our moves against improved technology, all our featherbedding practices, all the bogus rules which have slowed the pace of some industries. Yet along with them goes the curious contention that costs have no part in establishing prices, that somehow Ricardo's ancient Iron Law of Wages can be restored in reverse and all decreases in price be obtained by reducing profits. Translated into political pressures, such misshapen economic monstrosities become distinct threats to all advancement.

"If the Soviet Union really intends to pursue its international objectives through peaceful economic competition, then American business faces the most serious challenge in its history.

"It will be difficult to wage this battle solely in terms of price and quality of our products, because the Soviet economy is not built on costs. The government of the U.S.S.R. can move prices up and down the scale at will to suit a particular political situation.

"Understanding of the true benefits of our economic way of life is essential. Our case must stand not alone on the price and quality of our products, but on non-monetary considerations of stability, fair play, competition, and recognition of responsibilities as well. Our economic system is a democratic way of life. The Soviet's system is an instrument of Communist foreign policy directed at political goals.

"If public understanding is one of the principal weapons in winning this economic battle, no one knows better than you that it will have to be earned. The

general public is alert, well-educated, and interested. The people will increase their scrutiny of business and other institutions to see if what they regard as the common good is fully served. People won't be fooled by verbal smoke screens or moral pretensions behind which institutions can operate as they choose. Public understanding can't be achieved with mirrors, and no public relations program can make black, white or brown, blue.

"What we must have is good solid business accomplishment and business conduct that is in concert with and not opposed to the public good. In this task, the public relations professional will have an opportunity to make an enormous contribution. Sound counsel for business managements and intelligent and aggressive interpretation of the institution to the public will be required.

"This is not something of trifling importance. Back in the third decade of this century, businessmen learned the hard way that they could not be indifferent to what the public thought of them and their deeds.

"They found that the public had an agency through which it could speak and act, an agency larger and more powerful than any company, or even than all companies as a group. They learned that the Government of the United States could, under public pressure, compel obedience to the public will. It was a hard lesson, and the scars are still with us. But I believe it was thoroughly learned by most businessmen. . . .

"This emphasizes the tremendous responsibility which is placed upon you of the public relations profession, because it is to you that businessmen, and leaders in all fields, look for judgment and advice in matters involving public reaction. And I might add that, in today's era of widespread communication, there are few actions of importance which do not involve some degree of public reaction. . . .

"It will, of course, include the very important task of maintaining communication with the public. No one can overestimate the importance of this. When we talk about the right of free speech, we are really talking about the right of the people to be informed. That right exists because only an informed public can judge soundly and act intelligently. And a sovereign people that does not judge soundly and act intelligently will not remain sovereign long. . . ."

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AIA portfolio

Ludwig Mies van der Rohe, FAIA, world famous architect and retired director of the Department of Architecture and City Planning of the Illinois Institute of Technology, has been elected to receive the 1960 Gold Medal of The American Institute of Architects.

Mies van der Rohe was elected for this honor by the AIA board of directors at institute headquarters at the Octagon in Washington, D.C.

The famous architect will receive the coveted award at the annual dinner of the AIA convention in San Francisco on April 21, 1960.

Mies van der Rohe was born in 1886 in Aachen, Germany, and, like two other world famous architects, Walter Gropius and Le Corbusier, apprenticed in the office of Peter Behrens in Berlin. Mies' first building, the Kroeller house at The Hague, Holland, completed in 1912, caused a sensation in architectural design for the classic simplicity which still denotes his most recent buildings such as the Seagram Building on New York's Park Avenue.

The AIA directors have created a new annual award for architectural photography and have elected Roger Sturtevant of San Francisco its first recipient.

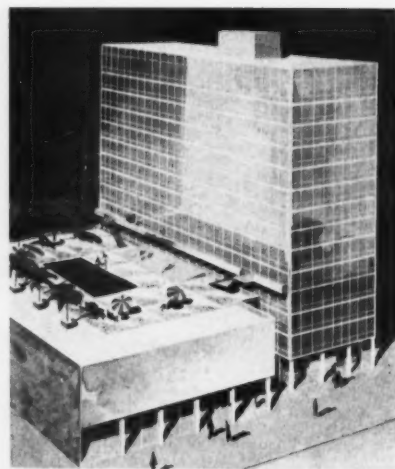
The AIA architectural photography award winner is known well beyond the Bay area for his sensitive photographs of both historic and modern buildings. Ken Hedrich, another well known architectural photographer, received the AIA Fine Arts Medal last year.

The winner of the AIA Fine Arts Medal for 1960, is Thomas Hart Benton of Kansas City, Mo., a well-known painter who is currently working on the mural for the Truman Memorial Library in Independence, Mo.

Born in 1889 in Neosho, Newton County, Mo., Benton achieved considerable fame through his heroically realistic presentation of American life on murals for the New School of Social Research in 1931, the Missouri State Capitol in 1936, the Jefferson City, Mo., Lincoln University in 1953, and the Power Authority Building in Massena, N. Y., in 1957.

A silversmith practicing his ancient craft in Colonial Williamsburg, Va., William L. DeMatteom has won the AIA Craftsmanship Medal this year. The awards will be presented at a ceremony in the course of the AIA annual convention at San Francisco,

A/E NEWS



Chicago's largest "motor-inn," a new \$4 million, 14-story glass and aluminum tower is under construction on downtown Michigan Ave. Unit will feature 285 rooms, outdoor swimming pool, garage facilities for 200 cars, a 350-seat restaurant and a cocktail lounge. Architects and Engineers: A. Epstein and Sons, Inc., of Chicago.



Plans for the new \$4 million, 7-story Scripps Memorial Hospital in La Jolla, Calif., call for a 250-bed facility, pediatrics, X-ray section, clinical laboratory, physical medicine and dietary units. All surgical, adjunct and administration facilities are located on the ground level. Service facilities are grouped in the lower level, with the central medical supply for the entire building located under the elevator wing. Architect: Charles Luckman Associates, planning-architecture-engineering firm of Los Angeles and New York.

April 18-23, 1960.

A jury of outstanding architects has selected five recently completed buildings "which demonstrate true leadership" in architectural design for the 1960 First Honor Award of the AIA.

Winners of the First Honor Award are: Mutual Insurance Company of Hartford, Conn., by architects Sherwood, Mills, and Smith; the Moore School of Electrical Engineering, Philadelphia, Pa., by Robert L. Geddes, Melvin Brecher and Warren W. Cunningham; residence for Mr. and Mrs. Richard Opdahl, Long Beach, Calif., by Kingsworth, Brady and Smith; the Blyth Arena (Olympic Ice Arena) Squaw Valley, Calif., by Corlett and Spackman, Kitchen and Hunt of San Francisco; and the United States Embassy Building, Oslo, Norway, by Eero Saarinen and Associates.

In addition to the First Honor Awards, the jury made eleven Awards of Merit for a variety of projects including a chemical research center, two religious buildings, a shopping center, two residences, two housing projects, an atomic reactor laboratory, a nose hangar, and an apartment development.

In its selection from among the 289 submissions, the jury felt "that the designs selected represented an outstanding contribution to the cause of good architecture in at least one major aspect." In the case of the Honor Awards it was felt that the over-all solution was well handled in plan, in structure, in terms of the solution of lighting and particularly in terms of the architectural distinction.

The jury report added: "Many of the buildings submitted were extremely competently handled but the jury was searching for examples which demonstrated true leadership."

Certificates will be presented to the architects and owners of all awarded buildings at the AIA San Francisco convention. In addition, a plaque will be presented for installation in award buildings.

The AIA Honor Awards Program was established in 1949 to encourage the appreciation of excellence in architecture and to afford recognition of exceptional merit in recently completed buildings. Any registered architect practicing professionally in the U.S. is eligible to submit work. Buildings entered, which may be anywhere in the U.S. or abroad, must have been completed within the past five years.

Competitions/exhibits

Trinity College, Dublin, has announced an international architectural competition for the design of a \$1.4 million extension to the existing 18th century library building on its campus in the center of Dublin.

The design of the new building is stated to present an interesting challenge to the architect—the creation of a structure that will be in harmony with the fine examples of Georgian and Victorian architecture now on the campus. But far from demanding neo-Georgian building, the College is asking for a contemporary design which will express the mid-twentieth century as faithfully as the present library, begun in 1712, expresses the Age of Reason.

A jury of "assessors" has been selected. The competition will be held under the rules of the *Federation Internationale des Architectes* in Paris. It is to be in one stage only, and competitors will be asked to design one complete building, capable of being brought into library use by steps. Details regarding submission of entries will be available in April and will be judged in November of this year. First, second and third prizes in the sterling equivalents of \$4,200, \$2,100 and \$1,400 will be given. Including all fees, the first prize will be worth about \$65,000 to the winner. Further information may be obtained from the American Council for Trinity College, Dublin, 53 E. 93rd St., New York 28.

The 1960 Conference on Church Architecture sponsored jointly by The Church Architectural Guild of America and the Department of Church Building of the National Council of the Churches of Christ in the United States of America announces its annual architectural exhibit of religious buildings. Entry information regarding this exhibit may be had from Walter J. Wefel, Jr., 17405 Scottsdale Blvd., Shaker Heights 20, Ohio.

BRI spring conference

In the first sweeping, objective view of progress during the past five years in masonry construction, the *Building Research Institute* will present a conference on insulated masonry cavity walls during its spring meeting in New York, April 5-7. Discussed will be new methods of design for such walls with respect to structural thermal characteristics, vapor transmission and water penetration based on the newest research data, as well as

new developments in anchorage and reinforcement and in mortars for cavity walls. Costs, too, will be analyzed both from the standpoint of initial cost and the thermal economics and ultimate costs of walls of this type. Other program topics will include adhesives in building, performance of buildings, surface preparation and field application of paints and coatings, a workshop on formats for presenting information on plastics used in construction, a roundup of college and university research projects on building, and a series of proposals for new building research by organizations throughout the country. The three-day program is open to the interested public as well as to BRI members and guests. Further information may be obtained from Milton C. Coon, Jr., BRI executive director, National Academy of Sciences-National Research Council, 2101 Constitution Ave., Washington 25, D.C.

News-in-brief

A contract for architectural and engineering design of The Camille Dreyfus Laboratory at North Carolina's new Research Triangle has been awarded to A. G. Odell, Jr. & Associates, Architects of Charlotte, N.C., according to an announcement of The Camille and Henry Dreyfus Foundation.

The 20,000 square foot building, to be located on the campus of the Research Triangle Institute, will be named in memory of Dr. Camille Dreyfus, founder and first president of Celanese Corp. of America. In addition to offices and laboratories for polymer research, the building will have a 200-seat auditorium for scientific meetings.

Perkins & Will, architects, at the request of the United States Information Agency in Washington, are displaying a model of one of their schools at an American education exhibit at the University of Moscow. The model is of Linton High School in Schenectady, N.Y., which last year received a top award for better school design. The school was designed in association with the Schenectady architectural firm of Ryder and Link. The exhibit, at the invitation of the Soviets, permits American students attending Moscow University to explain some aspect of education here in the United States. The display will be shown for some six weeks.

(Continued on page 8)

STRAN-STEEL simplicity means speed and savings

A \$4,000,000 multiple-dwelling project in Memphis, Tennessee, proves the advantages that can be yours with Stran-Steel lightweight steel framing.

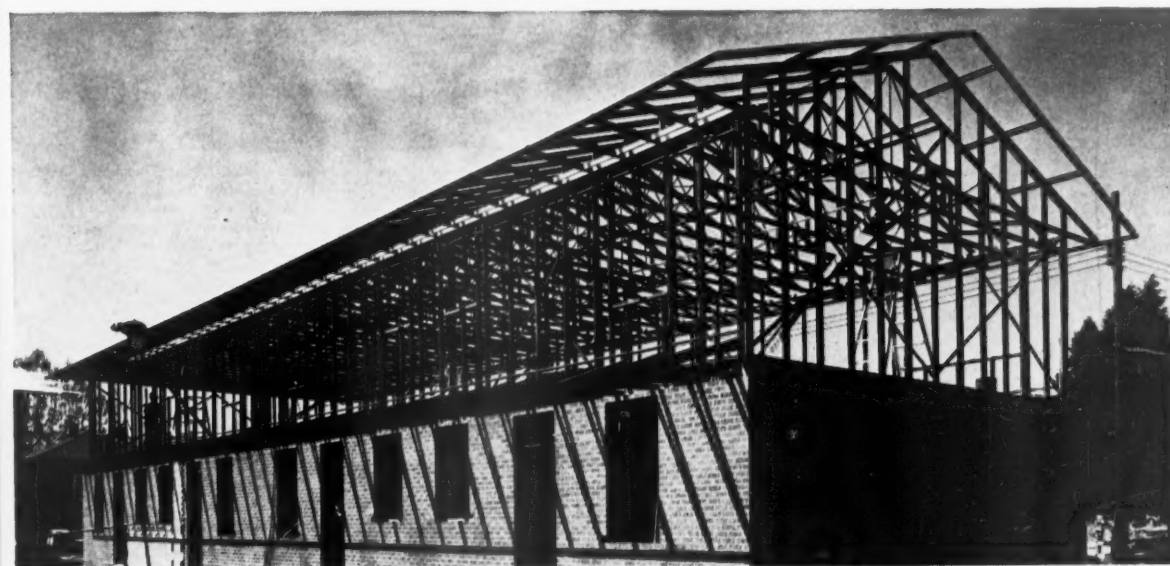
- Easy on-site assembly and hand construction eliminates need for crane rental, speeds job completion.
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- Practical Stran-Steel nailable floor joists were installed without cutting or detailed shop drawings. Joists for 90' buildings were installed in one day.
- Corrugated steel deck was nailed directly to joists in less than half the time—and cost—of welding.
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- Strong lightweight trusses were raised manually and welded in place—one every five minutes.



Eason, Anthony, McKinnie & Cox designed 31 Memphis project apartment buildings with Stran-Steel components. Sidewalls and trusses were assembled on wood jigs near building sites.



Every five minutes, workers lifted 31' trusses weighing only 140 pounds into place—including welding to the top channel of the load-bearing wall.



Perfect alignment of trusses shows straight roof eave. No shims were used. Hood houses lead pipes for radiantly heated floor. All steel in this 90' building was erected in three days.

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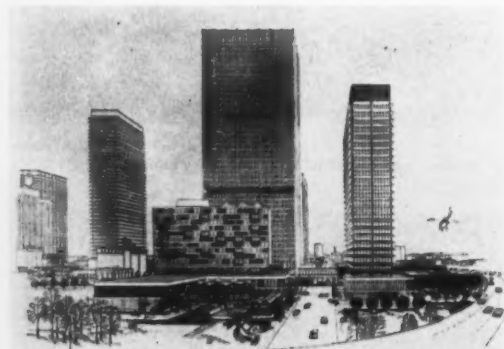
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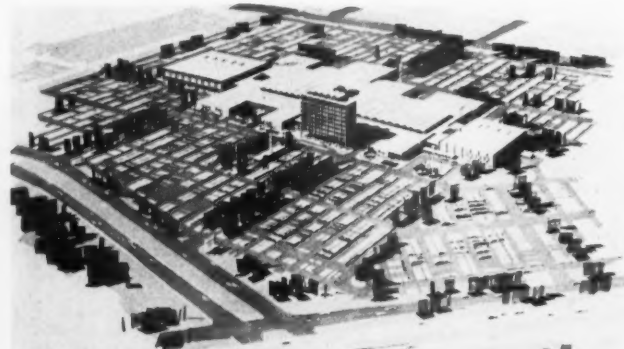
Plans for construction of new \$3 million, 9-story home office headquarters building in Los Angeles for the Pacific Employers Group of insurance companies have been announced. An outside mechanical core, used for the first time in a building of this size in LA area, will be a design feature. The core will contain all elevators, utilities, stairs and lounges to permit flexibility and unobstructed office areas. Architect: Charles Luckman Associates, planning-architecture-engineering firm, Los Angeles and New York.



General Services Administration announced approval of the design for a new \$31.154 million U.S. Custom House and Federal Office Building at Los Angeles. GSA has instructed Welton Becket and Associates, coordinating architects, Albert C. Martin and Associates, and Paul R. Williams Associates, all Los Angeles architects to proceed with preparation of final plans. The 8-story unit will contain about 1.2 million square feet of office space to house 4,800 employees. The steel-framed structure will be faced with metal and glass and marble. It will be air-conditioned, and have 16 elevators, as well as escalators serving the first two floors.



Cullen Center, a \$100 million downtown Houston, Texas, development with 500-room hotel complex in foreground, major office buildings right and rear, transportation facilities at far right. Architect: Welton Becket & Associates, Architects-Planners-Engineers of Los Angeles, San Francisco and New York.



Sharpstown Shopping Center at Houston, Texas, will feature network of air-conditioned malls joining 55 retail units, two department stores and a high-rise office building into one single, covered building complex. Scheduled for 1961 completion, project covers 77 acres and provides parking facilities for 6,000 vehicles. Architects and Engineers: Sidney H. Morris and Associates, Chicago, Ill.



Architect's rendering of final design for Philharmonic Hall, the first building to be constructed at New York's Lincoln Center for the Performing Arts. Architects: Harrison and Abramovitz of New York.



Simpson Timber Co. of Seattle has announced plans for a 20,000 square foot forest products research and development laboratory on a 10-acre tract near Bellevue, Wash. It will feature stressed skin plywood panels and folded plates. Architect: Paul Hayden Kirk, FAIA, of Seattle.

A/E NEWS

(Continued from page 7)

Architect Charles E. Broudy of Philadelphia has been retained to design the alterations and new buildings for the Valley Forge Country Club, Audubon, Penn. An extensive program for changes in present building, drive-ways, airport hangar and landscaping of the club in addition to a new building which will house locker room facilities for the club's swimming pool and year-round skating arena as well as a "Teen Center" are called for in the program. Broudy is the supervising architect for the International Trade Fair opening in Casablanca, Morocco, in April.

The St. Louis Chapter of The American Institute of Architects will sponsor two house tours which will terminate the 1960 Architects Week. The tours will consist of viewing six to eight selected homes within walking distance of the Chase-Park and Plaza Hotels in St. Louis. The following tour on May 1st, will be held of eight to ten outstanding homes in the St. Louis metropolitan area. Tickets for both tours will be available in the office of the St. Louis Chapter, Room h-18, Railway Exchange Building, St. Louis 1, Mo. Profits from all phases of the Architects Week will be used to finance the St. Louis Chapter's Scholarship Fund.

What has been described as the biggest urban land development program of its kind in Kentucky's history has been announced by Robert B. Hensley, president of the newly formed *Watterson City, Inc.* He estimated that it will represent an over-all investment of more than \$50 million when completed.

The program calls for the construction of eight office buildings, none higher than 100 feet; an auditorium, two groups of terraced apartment houses, a luxury motel and restaurant, a non-denominational chapel, and other structures. Included will be parking accommodations, landscaped areas, a golf course, a swimming pool and a heliport. The site, named in honor of the revered former editor of the Louisville *Courier-Journal*, is in the rapidly growing southeast section of corporate Louisville. To date no architects have been named, however, Geer Associates of Bloomfield Hills, Mich., city and land planning consultants, have been engaged to make feasibility studies.

CSI/ASCE/ASHRAE news

The theme of the 1960 convention of the *Construction Specifications Institute* will be technical, concentrating on the building materials aspects of specifications and better methods in the preparation of specifications.

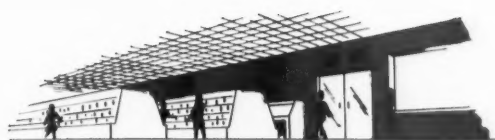
This year's meeting is to be held at Rickey's Studio Inn in Palo Alto, Calif., some 35 miles from San Francisco, April 25, 26, and 27. The CSI affair follows the AIA annual convention at San Francisco. About 500 are expected for the CSI meeting. The Institute now consists of 41 chapters with more than 4,100 members. Further information may be had from the CSI at 632 Du Pont Circle Building, Washington 6, D.C.

Technical and professional activities of American engineering societies were explained to 18 engineers and architects of Soviet Russia at a meeting sponsored by the *American Society of Civil Engineers*. The Russian delegation is on a tour of the United States. In an address of welcome, Enoch R. Needles, past president of ASCE, told the visiting engineers that engineering was a "common language" to engineers everywhere, and much could be gained in world understanding by an exchange of views and ideas within the profession.

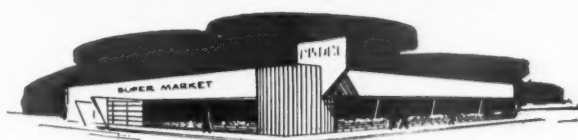
Speaking for the Russian delegation, Vladimir A. Kurchenko, chairman of the USSR State Construction Committee, a high ranking Soviet official, agreed with Mr. Needles that there should be a greater exchange of ideas, and said that the engineers and architects everywhere in the world represented progress in the service of mankind.

William H. Wisely, executive secretary of ASCE, detailed the operations and activities of American engineering societies, as represented by ASCE functions. Of the visitors, six were architects. The engineers represented the fields of construction, electrical, mechanical and education.

The semi-annual meeting of the *American Society of Heating, Refrigerating, and Air-Conditioning Engineers* held at Dallas, Texas, brought together over 3,000 members and guests in a program consisting of technical papers, and problems of professional responsibility. The subjects covered by the symposium sessions were: should plastics be used in refrigerators; engineering responsibilities in air-conditioning; and, a review of psychometric chart data.



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WAGON WHEEL ROOF

The singularly most distinctive feature of the new Pan American World Airways passenger terminal, now under construction at New York International Airport at Idlewild, is its immense saucer-like roof. Over four acres in area, and large enough to cover Yankee Stadium, it will hover gracefully over the center terminal structure and extend out protectively against the weather for both jet planes and passengers alike.

Translating this bold roof design concept into steel and concrete called for imaginative and unorthodox answers by the architects and engineers. Tippetts-Abbett-McCarthy-Stratton, with Ives, Turano and Gardner of New York as associated architects, are the architects and engineers for the unusual structure. The Turner Construction Co. of New York is general contractor.

Basically, the elliptical-shaped roof is like a huge wagon wheel with 32 spokes. The hub is fixed by a central anchorage, but the actual support of the spokes is a series of heavy piers midway out to the rim.

Cantilevering 114 feet beyond these piers, the canopy portion of the roof, which shelters six jet liners at once, is framed into the 32 spokes. These spokes are welded girders each prestressed with six heavy cables, which pass over a stanchion mounted on the girder directly over the supporting pier underneath.

"Borrowing" from suspension bridge principles, the designers have achieved shelter and a gracefully upward soaring roof line, somehow suggestive of the jet speed offered by the owners.

Coincidental with arriving at the cantilevered wagon wheel concept, the designers applied fresh thinking to the problem of roof and ceiling construction. Two requirements were paramount here: holding roof weight to the minimum (with accompanying savings in supporting structure and foundations); and providing sound absorp-

tion along with decorative potential.

The first condition was met largely through the use of welded wire fabric for reinforcement of the 4-inch thick lightweight concrete slabs between the spokes, or, more properly, radial girders, of the roof. About a 20 per cent reduction in weight of reinforcement was realized by the use of fabric, due to its allowable tensile unit stress of 24,000 psi, compared to the 20,000 permitted for reinforcing bars. The greater value permitted fabric is due to its guaranteed yield strength of 60,000 psi.

Except for a limited area of the roof slab inside the ring of roof supporting piers where load requirements made bar reinforcement more practical, wire fabric was specified for the slab, with its attendant reduction in weight of reinforcement. In the design of the concrete canopy, the snow load was assumed to be 40 psf.

The designers specified a lightweight aggregate concrete, weighing 100 pounds per cubic foot, an aggregate within the Haydite classification.

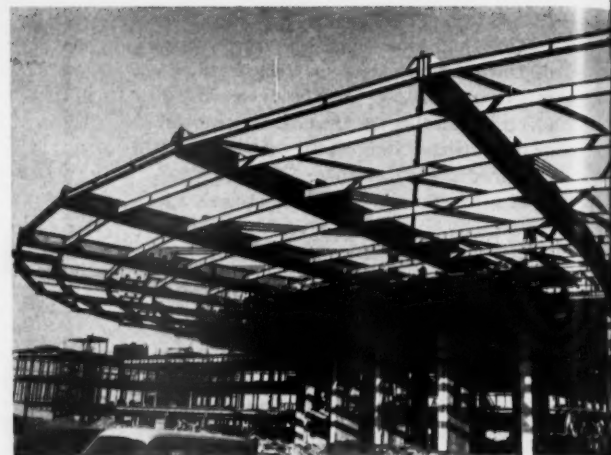
In solving the sound absorption, decorative requisite, the designers also reduced weight of the roof structure. They specified that an acoustical cellular glass insulation in 3-inch thick blocks be installed as the ceiling material. Since this material weighs only 2 pounds a square foot, but is highly effective in reducing sound levels and is attractive when painted, the architects achieved three ends at once.

Converting the owner's wishes, and the designers' plans into actuality was a test of the construction experience of the contractor's organization. With the wagon wheel framework in place, and construction underway on the central building, construction of the roof slab itself and ceiling became the next problem.

Probably basic to the subsequent, smooth progress of the job was the decision to suspend from the roof reusable falsework for all the roof construction and to *hang* all formwork for the concrete roof slabs. The falsework was made up of sections approximately 10 feet square, usually a dozen or more planks nailed to two heavy timbers. With manual winches at all four corners, the workers then hoisted themselves up on the section to the desired elevation, and tied the section in.

Enough falsework was made up to work on 18 bays of the roof at once, and, as work progressed around the elliptical wagon wheel, sections were removed from the far end and hoisted up to join the forward end of the work.

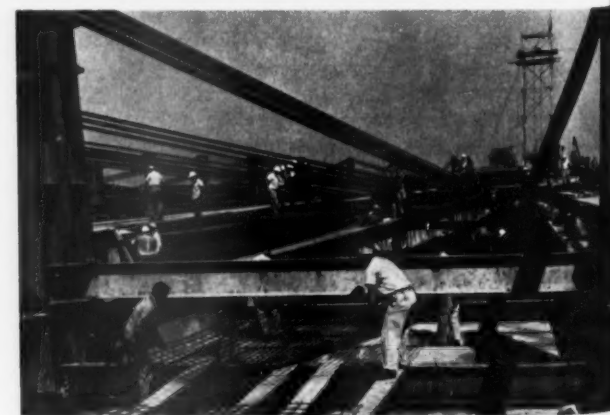
With the falsework in place, the carpenters then placed the formwork for the roof slab from underneath, the entire formwork system being supported by hangers from the radial girders and purlins which brace and stiffen the roof framework. Fifteen sets of forms, enough for nearly half of the 32 wedge-shaped bays in the roof, enabled work "on top" to proceed in sequence without any wait. After concrete in a bay had set and cured, formwork was stripped,



Framework for elliptical-shaped "wagon wheel" roof of Pan-American World Airways Terminal Building at New York International Airport seems to hover over the terminal structure. Radial, spoke-like girders soar into air, will support roof covering six jets and loading passengers. Under framework, falsework is hung and to be used to place roof formwork.



Workmen, using bolt cutters, trim sheet of welded wire fabric reinforcing to fit tapered section of roof of Pan-Am terminal building at Idlewild Airport. Planks laid on purlin, serve as "work bench." Upward flow of "wagon wheel" like roof can be seen from successively higher purlins behind workers.



Workmen ease large sheet of welded wire fabric under purlin and into place in roof area just inside stanchions (left and right) of Pan-Am building. Cables are anchored in center section of building (background) pass over rockers atop stanchions and support cantilevered section of elliptical roof.

and leap-frogged ahead to the forward end of the job, following up on the newly placed falsework.

"On top" operations followed this sequence: First step was to pour the concrete encasement of the radial girders (or spokes of the wheel), formed previously from below, and into which had been placed bar reinforcing, pigtailed out for later tying into the roof slab.

Then, on the newly placed plywood forms, workers laid 12 by 18-inch blocks of 3-inch thick cellular glass insulation, with the blocks butted tightly against each other and completely covering the area of the roof slab between girders and purlins. Over this, roofers then applied a coat of asphalt mastic waterproofing adhesive.

Next, the lather crew moved onto the job, first placing 1-inch high chairs, and then laying in sheets of 4 x 6-000/2 welded wire fabric. The sheets were generally 10 feet wide and up to 16 feet long, the distance between purlins in the outer portions of the wedge-shaped bays.

In these outer sections the fabric was placed so that the heavier wire, 3 ought gauge, spanned the distance between purlins, about 16 feet. For the roof slab in the interior parts of the bays, the fabric was placed so that the heavier wire spanned between radial girders. The sheets of reinforcement were placed so that they rested on the flanges of the purlins, and then draped down to the 1-inch chairs on the plywood forms.

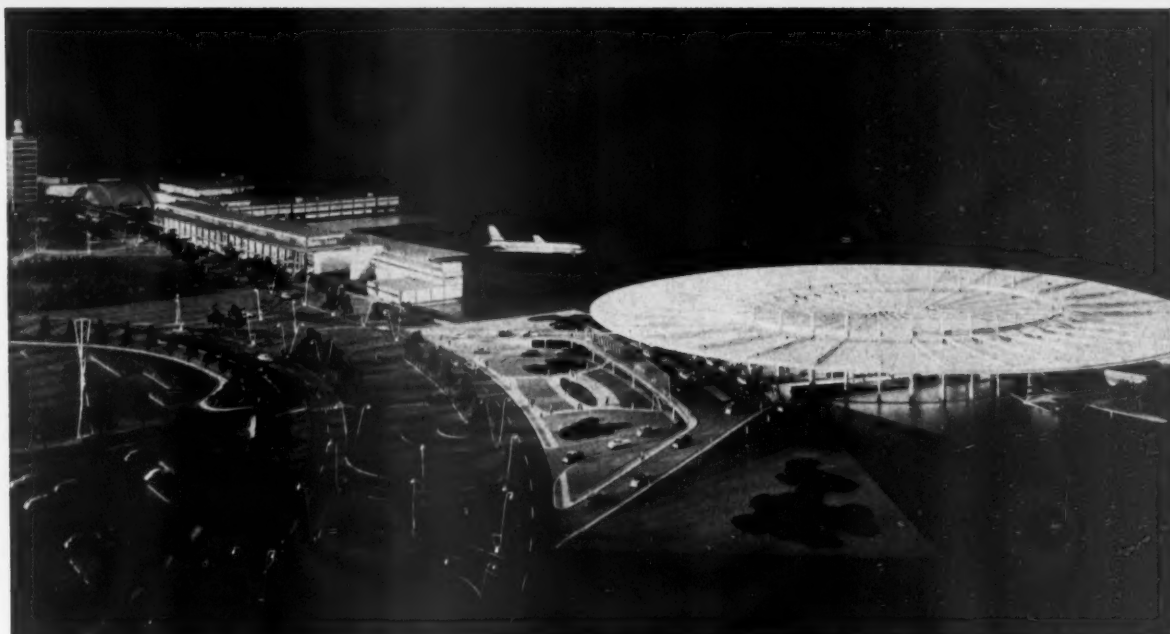
In lapping the sheets, care was taken always to nest the heavy 3 ought gauge wires in each other, with the lighter #2 gauge wires of the sheets on top and bottom of the lap. This assured even more effective continuity of reinforcing and also reduced the cross sectional area of the lap to a minimum, and permitted optimum concrete cover.

The sheets of fabric were trimmed on the job to fit the angular sides of the roof slab areas, each one being, in effect, a trapezoidal section out of the wedge-shaped bay. To assure continuity of reinforcing from girder to slab, the bar reinforcing previously pigtailed out of the concrete girder encasement was bent to the fabric sheets and tied.

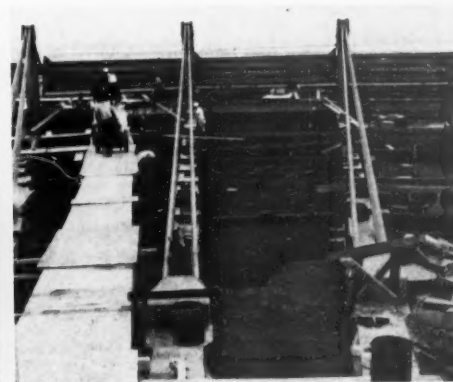
With the reinforcement in place, workers then inserted holding clips in the cellular glass blocks. Three of these clips, galvanized, 3½ inches long, with a 1-inch long angular tab on top, were pushed into each block at an angle, thus furnishing a three-way grip on the block by the concrete when it was poured. The clips could not be inserted before placing the steel fabric because workers might have stepped on and bent them, displaced them, or even torn some of the clips loose.

Final step in the roof slab construction was placing the lightweight concrete. The ready-mix was hoisted up at the central anchorage of the structure, and distributed by Georgia buggies over runways laid across the radial girders, purlins, and temporarily placed span-all steel joists. Over 4,000 yards of concrete went into the roof slab.

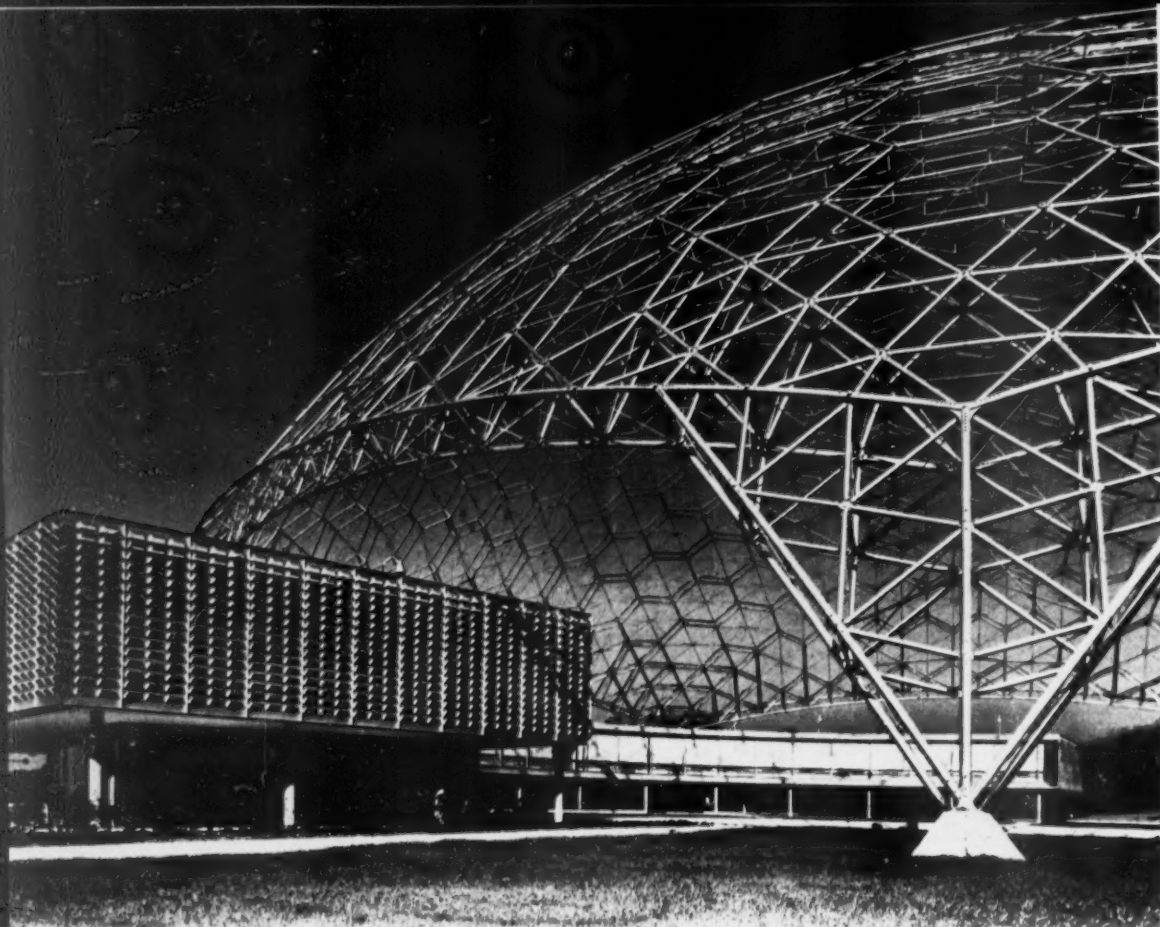
When completed later this year, the new terminal will cost \$10 million.



Architectural model of the new Pan American World Airways passenger terminal at New York International Airport at Idlewild. International Arrival Building is in background. Tippetts-Abbett-McCarthy-Stratton, Architects and Engineers of New York; Ives, Turano and Gardner, Associated Architects of New York.

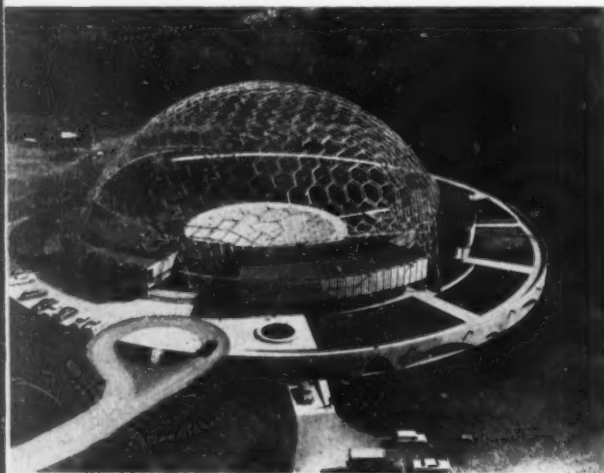


After reinforcement is placed (at left), worker slides galvanized clips into cellular glass block. Clips, three to a block, are angled, and will afford a grip to concrete roof slab to be poured over block. When plywood forms underneath are stripped, underside of blocks becomes ceiling of terminal building. After cellular block is laid (at right), roofers brush on asphalt mastic waterproofing adhesive (partially applied in bay, center of picture). View here is hub of wagon wheel looking out to rim of roof structure. Suspension cables, anchored at core, pass over top of stanchion and support cantilevered portion of roof. Concrete buggies traverse runways and deposit mix in area near stanchion.



TWO GEODESIC DOMES

Five pylons support the new ASM geodesic dome seen above and below. The semi-circular headquarters building features a stainless-steel screen which controls interior light throughout the year except at exactly 4:30 pm, December 21, when the sun is at its lowest point in the sky.



THE ASM GEODESIC DOME

Laymen as well as experts in architecture and the construction industry have come to marvel at the new geodesic dome of the American Society of Metals near Cleveland, Ohio. This dome, which dominates the site of the new ASM Headquarters Building, is considered by its proud possessors to be the world's largest space lattice. Composed of 13 miles of extruded aluminum alloy and tubing and tension rods, it rises to a height of 103 feet and has a 250-foot diameter.

The dome will never be covered or enclosed, but will be complete as it stands. Nor does it in any way support the building. Although it is structurally independent, it is considered essential to the over-all architectural composition and plan.

What it is

Rather, the dome's purpose is purely aesthetic and symbolic. Perhaps it could be considered a tremendous *architectural detail*—probably the largest ever.

Symbolically, man's very ability to erect such a dome dramatizes his mastery of metals. It is, in itself, a construction and metals-engineering achievement, since a perfect sphere is most difficult to achieve. Yet, it is still "reaching for the sky."

Its aesthetics and form in relation to the architectural composition—provide in the dome an inverted saucer over the "mineral garden" which is, itself, a saucer-like depression within the garden piazza. Thus, according to the ASM directors, sky and earth are "wedded." The dome will be used as an enormous garden trellis. Landscaping plans call for the planting of willow trees at the far edge of the mineral garden, to go up through the "trellis."

Design/engineering/erection

The dome is comprised of 65,000 parts—5¼ miles of 4-inch and 6-inch extruded aluminum tubing, Type 6061-T6. Its weight is 166,000 pounds. There are 7¾ miles of extruded aluminum tension rods.

The basic unit of assembly is the hexagon composed of 4-inch tubes. There are actually two domes, one within the other, to achieve a stabilized structure with a minimum number of members at each joint. The twin domes are 30 inches apart, linked by 4-inch tubing at the points of the hexagons, which are "strutted" radially by the tension rods.

The five pylons are T-type trusses of 6-inch aluminum tubing, four of which rest on concrete piers, the fifth (within the courtyard of the dining room on the lower level of the building) resting on steel.

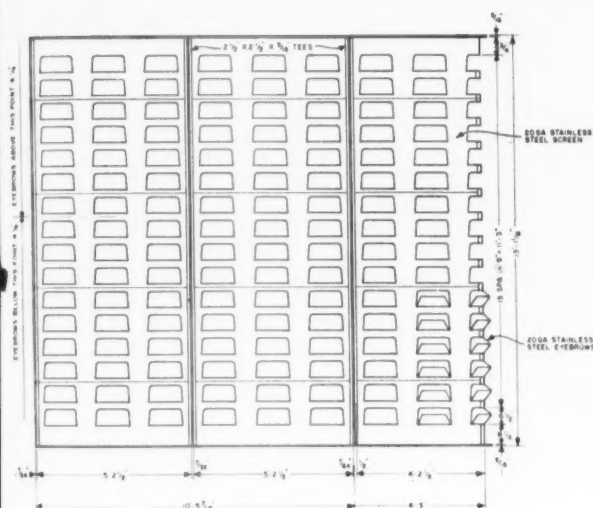
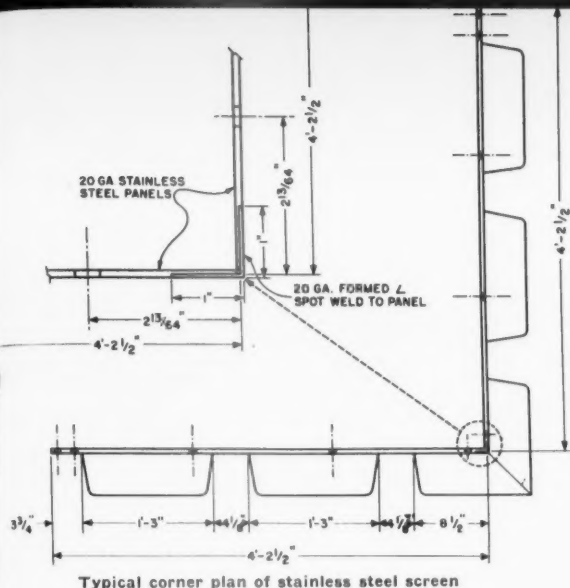
Footings for three of the five pylons are supported on concrete-filled steel pilings driven to varying depths. Those under the entrance-courtyard pylon go down 77 feet; at the dining room court, 24 feet; and outside the Library at the north edge of the mineral garden, piles go down 54 feet. Pilings were unnecessary for the easternmost pylon (directly across the mineral garden from the building) and for the south pylon (outside the boiler room). They were all driven in clusters of 12.

The architect of the project, John Terrence Kelly, AIA, of Cleveland, called for a minimum number of dome supports and the use of the minimal five is considered to represent a significant engineering achievement.

The designer of the dome is famed R. Buckminster Fuller, mathematician, philosopher and engineer. Today, some 1,000 of his geodesic domes are in use.

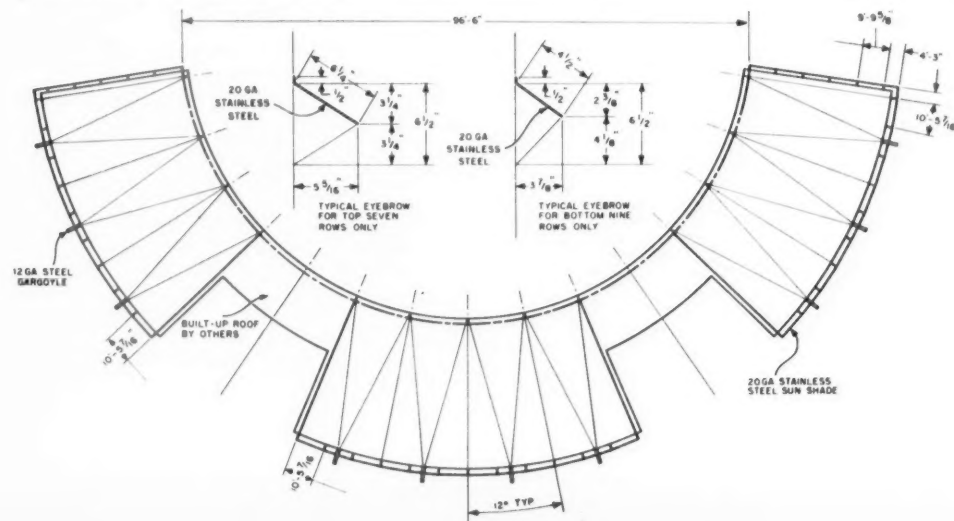
Tension ring

Perhaps the most interesting facet of the project from an engineering point of view is the use of the tension ring which links the five pylons to resist the outward thrust of the dome. The ring is 18 feet beneath the surface, 272 feet in diameter with a 136-foot raise. Distance between footings is 75 feet. The pylon bases are of aluminum, 20 x 20 inches each.



▲ Elevation of stainless steel sunshade

▼ Roof plan of stainless steel sunshade



Utilized in the tension ring were four 1½-inch No. 11 reinforcing bar rods. The material was pre-stressed, not preheated nor postheated. Arc welding was used, the welding operation being done entirely at the site. The welders, who required some 300-man hours to complete the job, used ⅜" electrodes and filler rods. Power sources were provided by gas-driven units, rating at 200 amps each. Stresses on the ring are calculated at 125,000 pounds on the four rods. It was calculated that the supports would withstand an 8-inch coating of ice on each of the 65,000 components of the dome. Erection procedure involved placing and bolting of the "bridges" between the pylons and then lifting the hexagons, in horizontal sections, into place, with booms.

Another compositional element in the architect's program for the building was the use of a huge (390 feet long by 13 feet high) stainless steel sunshade. This element spans the entire western perimeter of the upper story of the new ASM building. This represents the first time that a shade of this size has ever been constructed. The stainless steel was selected by the architect because of its serviceability in all kinds of weather and for its aesthetic properties.

The screen consists of 4,000 louvers or "eyelashes," that shade openings 14" x 16". With it, the architect was able to achieve a dramatic exterior effect to provide a contrast to the other metals used in the building. At the same time, it provides the excitement of a series of vignettes or "multiple" views of the rolling country-side from the building's interior. Designed to cut off the sun's hottest rays as it moves from east to west, the new screen effectively controls interior lighting and temperature in both the summer and winter months.

Both the sunscreen itself and the "eyelashes" were spot-welded to it at the site using a 20-gauge, Type 302 stainless steel with a 2D finish on the exterior side and a golden tone on the inside.

(Continued on page 14)

The corridor of a Fred Harvey Oasis Restaurant on Tri-State tollway near Chicago, illustrating a dramatic ceiling treatment possible with Steeldome construction. The painted concrete waffle ribs sound a new note in decor. Architect & Engineer: Pace Associates. Contractor: Ragnar Benson, Inc.



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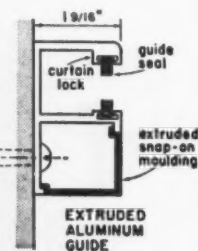
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Wood River, Ill., geodesic dome was raised by air pressure to successively higher levels, permitting much of the work to be done at ground level around the periphery. Air was contained under the dome by a giant air-inflated nylon fabric curtain, visible through the doorways of the dome.

TWO GEODESIC DOMES

(Continued from page 13)

AN ENCLOSED GEODESIC DOME

In contrast to the open-lattice of the ASM geodesic dome, the dome of the Union Tank Car Company at Wood River, Illinois near St. Louis, demonstrates a functional use of this type of structure in an enclosed space. This structure is considered to be the largest structure in the world ever to be built from the top down. Air pressure was used, which is only slightly greater than the air one breathes, to lift several hundred tons of steel.

The giant circular building is constructed of nearly 1,000 hexagonal steel panels welded together. The large dome-shaped structure is comparable in height to a 10-story office building and large enough inside (110,000 square feet) to hold a baseball or football field. This facility was designed as a repair and maintenance facility for railroad tank cars.

In erecting the Union Company dome, the start was made at the top by employing a huge nylon fabric bag which literally lifted the dome on air.

Ultimately the entire dome shell—560 tons of steel, 120 feet in height and 380 feet in diameter at the base—rested on a mere 1.60 ounces per square inch of air pressure.

This unique, and certainly dramatic, operation made it possible to do practically all construction work at or near the ground. As the work progressed, the dome was raised pneu-

matically to successively higher levels, making room for the addition of another row of panels at ground level.

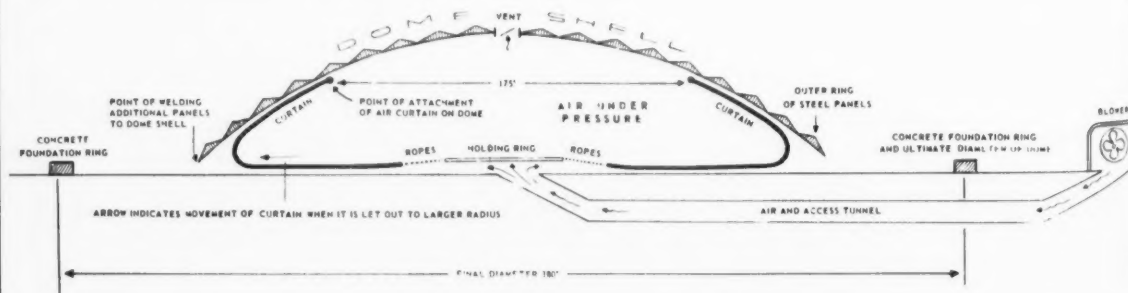
In all, there were 26 lifting operations—each an engineering feat in itself—raising the heavy dome shell at the rate of one inch every 30 seconds.

Method of erection

Technically known as a pneumatic lifting diaphragm, the vinyl-coated nylon bag—only 1/32-inch thick—was made to the erector's specifications. Although pneumatic erection operations of a similar nature have been carried out in the past, this was the largest diaphragm and the biggest top-to-bottom construction project on record.

The hexagonal panels, averaging 15 feet in width, were shop-fabricated and the assembly was made by welding them on the site. Construction at the Wood River site began by welding together the first 220 panels while the panels rested on a pipe scaffold 30 feet high at its center. This was necessary to form the topmost center section which served as a top, or lift, for the pneumatic diaphragm.

Once the upper section of the dome was completed to a diameter of 200 feet, while resting on the scaffold, the diaphragm was attached to the underside of the dome on a 175-foot circle, hanging to the ground like a giant circular curtain.



Line drawing shows pneumatic air curtain erection procedure. Single vent at top of dome shell was used to control air pressure, generally kept at 1.45 ounces psi. Dome was raised to successively higher levels by increasing air pressure.

The ground itself formed the bottom seal for the diaphragm which was drawn in along the ground to the center of the dome floor, and fastened by ropes to a 4-inch pipe holding ring, 40 feet in diameter. In all, some 326 ropes, spaced at approximately three-foot intervals, were draped down from the underside of the dome, around the outside of the bag, and tied to the holding ring as a means of controlling, reinforcing and restraining the diaphragm.

Before the bag could be inflated, the weight of the dome was shifted to a circle of hydraulic jacks, placed under the outer panels, and the scaffold was removed from beneath the dome.

Air, supplied by a 25 horsepower blower, which forced the air through an underground tunnel at the rate of 20,000 cubic feet per minute, then was supplied to the diaphragm for the first time.

Two blowers outside the dome—one serving as a standby unit while the other was in use—delivered air through the 220-foot tunnel to an outlet at the center of the diaphragm's holding ring inside the dome. The air tunnel, a multi-plate culvert 4½ feet in diameter, also provided access to the interior of the bag for workmen who entered the culvert by a double airlock and walked through the airstream.

Air pressure in the diaphragm was maintained at 1.45 ounces per square inch, only slightly above atmospheric pressure. At this pressure, approximately 90 per cent of the dome weight was supported by air and 10 per cent of the weight rested on the hydraulic jacks which also helped to stabilize the dome, preventing it from "floating."

In addition to the jacks, 10 guy lines were attached to the dome spaced at intervals around the dome and connected to it as a means of preventing lateral shifting of the dome during high winds. During the course of construction, which lasted for a period of several months, the dome was buffeted by winds of up to 45 miles per hour without damage.

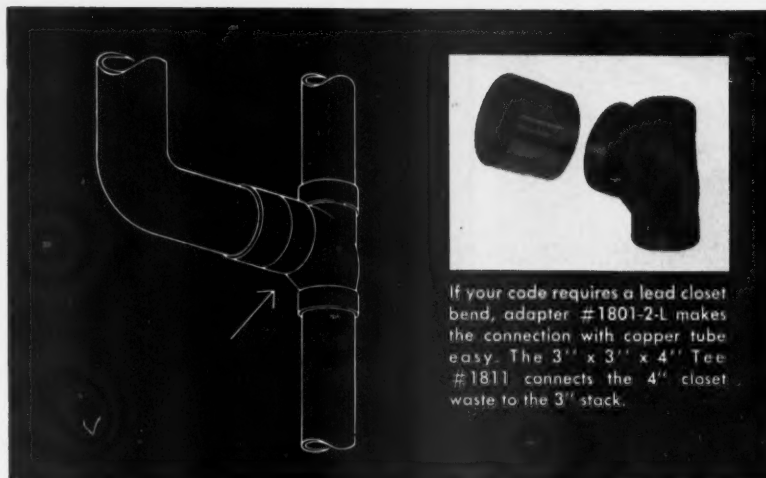
Control of air pressure

Control of the air pressure inside the diaphragm, and therefore on the underside of the dome shell, was accomplished by means of a single, manually operated vent, five feet in diameter, at the top of the dome. If the air pressure surpassed 1.45 ounces per square inch, tending to lift the dome, a cable connected from the vent to the ground at the centerpoint of the dome would grow taut, opening the vent and allowing air to escape. The dome would then settle back, slackening the cable and allowing the vent to close.

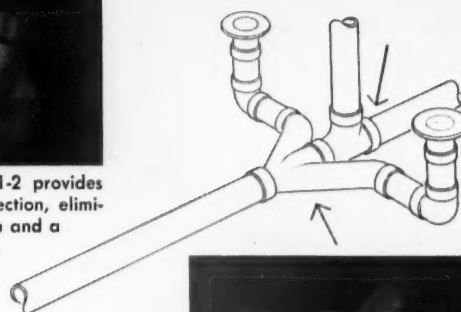
Lifting operations

Lifting operations were conducted by increasing air pressure to 1.60 ounces per square inch, which was found to be sufficient to raise the dome no matter how much its weight in-

(Continued on page 16)



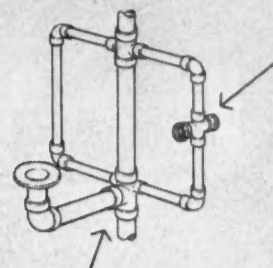
Sanitary Tee #1811-2 provides fitting-to-fitting connection, eliminating a short nipple and a soldering operation.



Double long turn T-Y #1836 eliminates the double Y-branch and 45° elbows combination.



For back-to-back waste lines, fitting #1835-3-3 lets you install threaded nipples prior to plastering.



Here's new time-saver—required by some codes — #1870. Note center line of side inlets is above center line of the main 3" inlet.



A FEW TYPICAL EXAMPLES OF TIME-SAVING ANACONDA FITTINGS

THERE IS A "RIGHT" ANACONDA FITTING FOR EVERY CONNECTION. With solder-joint fittings, a copper tube drainage system is roughed in quickly and easily—even when the work is overhead or in tight quarters. And there are many Anaconda fittings that save you still more time, effort and cost because they eliminate the need to assemble several fittings or a combination of fittings and short nipples. Do you have our *Catalog C-12* "Anaconda Copper Tube Fittings and Valves"? Every size (from ½" through 12") and type you need for general plumbing, heating, air-conditioning and refrigeration is listed for ready reference and ordering. Write: The American Brass Co., Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

ANACONDA® COPPER TUBE AND FITTINGS for soil, waste and vent lines

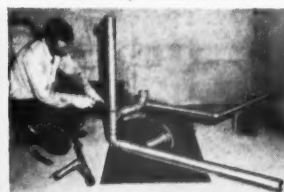
Available through plumbing wholesalers. Products of The American Brass Company



Longer Lengths—Fewer Joints



Preassembly—Saves Time



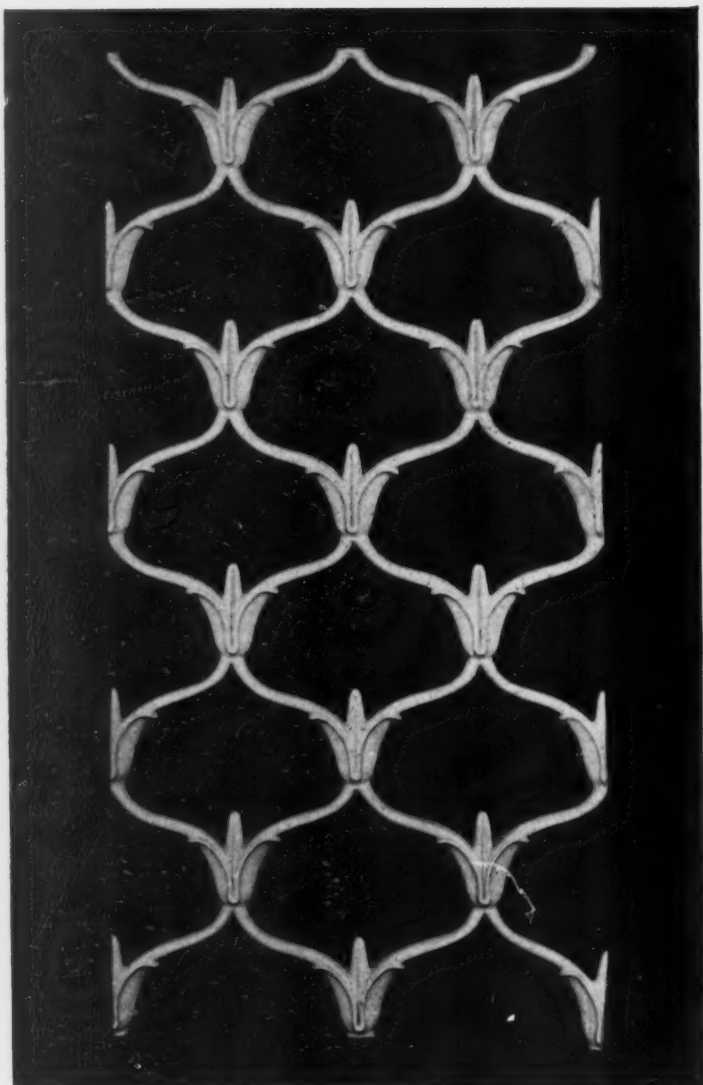
Lightweight Copper—Easier Installation



Compact Connections—Save Space



Circle 107 for further information



CONTEMPORARY TREILLAGE: new Amsterdam design

The delicate and graceful Amsterdam pattern, superbly executed in malleable iron, is equally striking in traditional or contemporary environment. Continuous designs are obtained by joining the castings, both vertically and horizontally, to form screens, grilles, columns or railing panels. The non-shattering quality of malleable iron assures permanence, as well as fabricating economy. "Amsterdam" is but one of the many beautiful panels carried in stock by Julius Blum & Co., Inc.

More than 8,000 items in stock. See Catalog No. 8 or Sweet's Architectural File No. 6e/BL. Phones: Carlstadt, N. J., GENEVA 8-4600; Philadelphia, Market 7-7596; New York, OXford 5-2236

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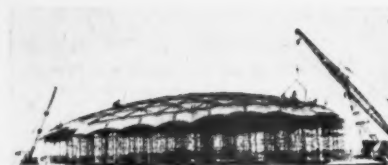
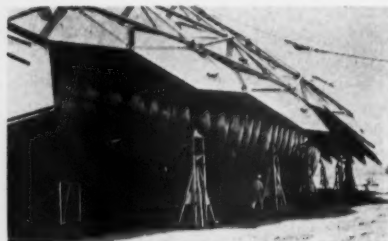
JB
Fifty Years
1910-1960

Circle 103 for further information

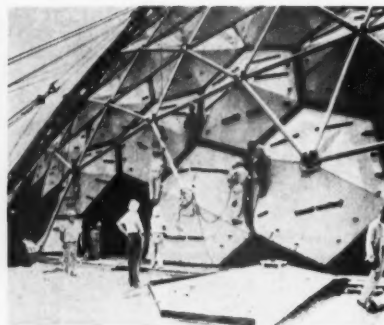
16



Pneumatic lifting operation is shown in interior view (above). Circular curtain was attached to underside of top section of dome, made up of hexagonal steel panels welded together. Bottom photo shows exterior view of pneumatic air curtain operation.



Construction of Wood River geodesic began with fabrication of top center section of the dome on a scaffold. The scaffold later was replaced with a giant, air-inflated circular nylon fabric curtain, with which the dome was literally lifted on air.



In the final operation, the last of some 1,000 hexagonal-shaped steel panels, which make up the Wood River dome, are welded to the foundation ring.

TWO GEODESIC DOMES

(Continued from page 15)

creased as the dome progressed. This was because the increased size of the dome also provided a greater lifting surface, against which the air pressure was exerted.

Preparatory to a lift, the cable to the vent was slackened by the number of feet it was desired to lift, thereby closing the vent and containing the air until that desired elevation was attained. Control of the lift was accomplished simply by means of this manual vent.

Also in advance of a lift, ropes which held the diaphragm to the foundation ring were loosened in order to let out the bag to a diameter corresponding to the increased size of the dome. However, the restraining ropes kept the bulge of the bag at a safe distance from the outer, lower row of panels, so that welding of the panels did not endanger the diaphragm.

As an emergency measure—in the event of serious puncture of the diaphragm—two balloons, one 8 feet and the other 12 feet in diameter, were kept inside the bag where they could be rushed into an opening to plug it. However, it was never necessary to use them. Small punctures in the bag did occur, usually due to contact with a sharp object, but the escape of air was negligible and the holes were easily patched.

Checking and connection

Once the dome was set on its foundations, a check was made to determine any movement of the dome shell, either radially or vertically, based on certain reference points. The only appreciable movement—from full air support to self support—was in its center height—which settled a mere 1 1/4 inches.

After welding to the foundation ring, the dome was connected to a 200-foot long "finishing" tunnel which will house sand-blasting and painting operations for railroad tank cars leaving the dome following repairs. This tunnel, only 20 feet high and 40 feet wide, also is made of hexagonal steel panels, but its construction was from the ground up in a conventional manner.

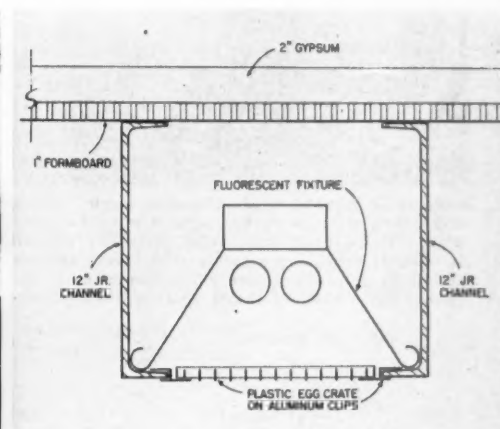
An index to the simplicity of the Wood River dome is its bill of materials, which incorporate only three basic items: (1) the hexagonal steel panels, (2) six-inch thick steel pipe which was used to interlock the vertices of the adjoining panels; and (3) small half-spheres used to anchor the six-inch pipes at the base of the dome to the foundation ring.

The Wood River dome was designed and engineered by Graver Tank and Mfg. Co. of East Chicago, Indiana, assisted by its staff consultant, Sturm and O'Brien of Auburn, Alabama. It is based on patents for geodesic structures held by R. Buckminster Fuller. Battey and Childs of Chicago were consulting engineers in charge of all construction on this project other than the dome shell erection.

DETAILING IN STEEL



For New York City's new Time & Life Building, now nearing completion, a specially fabricated section to give service stair stringers a spiraling appearance at each landing was developed. Photo at left shows workman at the architectural metalworking plant being guided by a jig in torch cutting the ends of a plate to produce this special section. Flanges cut from sections of 12-inch junior steel channels are welded to the spiraled section. Center photo shows a flange cut from the 12-inch junior channel being heated and shaped. At the right, the finished section is seen where-in top and bottom flanges cut from the channels have been welded to the spiraled sections to give them the appearance of channel stringers. Architects for the project are Harrison and Abramovitz of New York.



Boxed junior steel channels were used as the main roof structural support in four Adams County, Colorado schools designed by Architect Roland Johnson, AIA, of Denver. The schools were designed and built at a cost of \$10 per square foot, representing a saving of from 18 to 25 per cent over conventional methods. In addition to serving as roof supports, the boxed channels also enclose the lighting fixtures at a cost savings estimated at \$375 per room. Center photo shows section being checked. Diagram at right shows the manner in which the fluorescent lighting fixtures were housed.

FIREPROOFING STEEL

by Melvin G. Quayle
Technical Service Director
Zonolite Co. of Chicago

Since its first use about 20 years ago, lightweight aggregate fireproofing for steel construction has resulted in great cost savings for the building industry. With improvements over the years, lightweight fireproofing materials have contributed to the development of light-frame steel construction, while measurably reducing steel requirements, minimizing dead load of buildings, and reducing over-all construction costs.

In 1941, the first use of such material was in a light-frame, fire-resistant steel structure—the 35-story Mercantile Bank Building in Dallas, Texas. Here, the use of a vermiculite aggregate plaster, a cellular steel floor system, and a thin vermiculite concrete slab reduced dead weight of the building by 15,634 tons. The resultant saving in structural steel was 1,880 tons or about \$235,000 at 1941 prices.

Another major advancement in the field occurred in 1955, when engineering and research developed the first direct-to-steel fireproofing material. By the use of a vermiculite plastic material with acoustical properties, an improved method of fireproofing to that used in the Mercantile Bank was introduced.

First used to fireproof the American Automobile Assn. building in Kalamazoo, Mich., direct-to-steel fireproofing is today accepted as one of the most practical and economic methods of providing fire protection for steel-constructed buildings. Another industry-developed process in steel-structure fireproofing is a process for machine application of the material, direct-to-steel in a single coat.

Although structural steel is incombustible and retains its strength to a high degree at temperatures up to 1,000° F, the threat of sustained, high-temperature fire in certain types of construction and occupancies requires that the steel frame be protected with fire-retardant materials.

According to the American Society for Testing Materials, in the standard fire test top side air temperatures should not rise to more than 250° F over ambient temperature. Steel temperatures should not exceed 1,000° F with furnace temperatures up to 2,000° F.

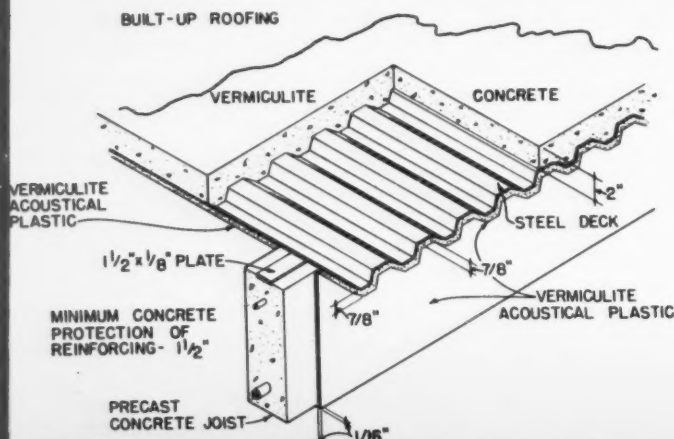
Tests have been made on a proprietary floor system utilizing a vermiculite plastic material with acoustical properties, which was applied to the underside of a Granite City Steel Co. floor. Concrete thickness over the top of the unit was 3½ inches. The acoustical fireproofing material was ½ inch thick below the corrugations, or a 1.09 inch over-all average, with the filled corrugations.

The fireproofing material resisted fire for four hours and 37 minutes. The results of this test were then used as a guide for determining what could be expected when applied to the underside of other types of steel floors.

The base of this type of system is vermiculite, a mica-like mineral which expands like an accordion at 2,000° F and forms multi-celled, lightweight granules with high insulating value.



Laboratory technician demonstrates single application, direct-to-steel fireproofing material. Isometric view of lightweight roof system (below) with U.L. two-hour fire rating. Assembly consists of 2-inch slab of vermiculite insulating concrete over vented corrugated steel deck supported on precast concrete joists. Underside of deck receives 7/8-inch vermiculite acoustical plastic sprayed directly to steel.



Here workman fills in cells in the underside of a cellular steel floor in the ten-story Stoddard Building at Lansing, Michigan. Primary advantage of material is that it can be applied to any specified thickness in a single application.

In addition to its other advantages, direct-to-steel fireproofing enables the architect to reduce the amount of space between floors. Because the space formerly needed for lathing between the steel deck and fireproofing has been eliminated, the height of each floor is reduced by as much as 15 inches, with resulting economies in steel tonnage and other construction costs in multi-storied buildings.

A five-story concrete-frame building in Portland, Ore., recently was converted to an 11-story steel-frame structure. Direct-to-steel vermiculite fireproofing saved enough vertical space to permit an extra story in the same over-all height. The fireproofing was sprayed onto the underside of the cellular floors. This also eliminated fire dampers and permitted use of the space between the finished ceiling and the floor above as a plenum for the air-conditioning system, duct work and utilities.

Experience has shown that in some forms of steel construction where this type of fireproofing is used, as much as 65 per cent of the dead load can be eliminated with savings from 12 to 22 per cent over other forms of fireproofing.

About 1 inch of vermiculite fire-resistant material applied to metal lath can do the work generally expected of 2 to 3 inches of concrete—and do it more effectively and at a marked reduction in basic steel requirements.

In most instances, it has been found that one application of fireproofing material can provide more than the required standards of fire protection, effectively reducing installation costs. It can be applied to meet any desired thickness in the one application to comply with specifications and many building codes.

Improvements in one product eliminates the necessity of dismantling and rebuilding scaffolding in order to apply a second coat of fireproofing. One of many recognized factors in high construction costs is the delay caused by one trade waiting for another to finish its work.

Another advantage for architects and builders is that work with the vermiculite-based material can continue even during bad weather, thereby avoiding additional delays and allowing other phases of construction to be stepped up.

The material can be machine applied directly to the underside of corrugated, cellular, flat plate, fluted or hollow rib steel floors. It can also be used to fire-protect floors, beams and girders. When sprayed to the underside of fluted ceilings or flat plate and cellular floors, a uniform coating following the contours over the entire surface is adequate, eliminating the need for filling the cells.

The fireproofing material provides adhesive properties, and sets quickly to become a tough, hard material without fissuring or shrinkage. It is non-abrasive, eliminating excessive wear on applying machines. Pre-mixed, requiring only the addition of water, the material can be used with standard mixers and plaster machines. Test data on materials is available through reputable manufacturers.



THE STORY BEHIND THIS SEAL

This is more than just the Seal of Approval of the Steel Joist Institute. It is the symbol of a 32-year-old dedication to the welfare and progress of an important segment of the design and construction industries.

What is the Steel Joist Institute?

It is a voluntary association, organized in 1928, of open web steel joist manufacturers. Membership is available to any producer of open web steel joists who elects to manufacture joists in accordance with the standards and practices as adopted by the Institute.

What is its purpose?

The Steel Joist Institute is a nonprofit organization made up of manufacturers actively engaged in the fabrication and distribution of open web steel joists. It was organized to place the industry on a sound engineering basis. Its objectives are to establish methods of design and construction for open web steel joists, to provide test and research data for public dissemination, to assist in the development of appropriate building code regulations, and to publish information relative to the proper

use of steel joists in the interest of safety and the public welfare.

What are its accomplishments?

The Institute has made substantial practical contributions to the building construction industry. It has developed and published a comprehensive manual of standard specifications, load tables, and technical bulletins to assist the architect, engineer, and contractor; conducted research and testing of open web steel joists, bridging and cantilever members; initiated a thorough, effective quality verification program for "S" Series joists and a recommended Code of Standard Practice applicable to steel joists used for spans up to 96'.

Inquiries concerning the Steel Joist Institute should be sent to the Managing Director, Steel Joist Institute.

STEEL JOIST INSTITUTE

Suite 715 • 1346 Connecticut Avenue, N.W. • Washington 6, D. C.

Circle 109 for further information

PRODUCTS, EQUIPMENT, MATERIALS

Report of recent developments by industry, based on data furnished by mfrs. Inquiry cards for further information face pages 1 and 48.



OFFICE AND LOUNGE FURNITURE UNITS

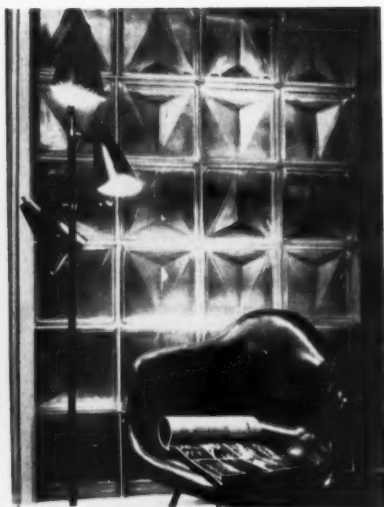
MFR'S DESCRIPTION: line of furnishing units available, utilizing such materials as stainless steel, bronze, teak, walnut, mahogany, marble and leather.

USES: in offices and public seating areas such as airport lounges, restaurants, chapels, waiting rooms, etc.

SPECS/FEATURES: many of available items are modular. Desks, cabinets, seating units, planter, benches, tables and chairs are included in line. Typical is 15' platform seating unit with integral tables and planters. Base and planters are of polished stainless steel, table surfaces of Italian *Cremo* marble.

AIA FILE NO. 28-A

MFR: EDGEWOOD FURNITURE CO., INC.
Circle 200 for further information



CONCAVE SURFACES FOR GLASS UNITS

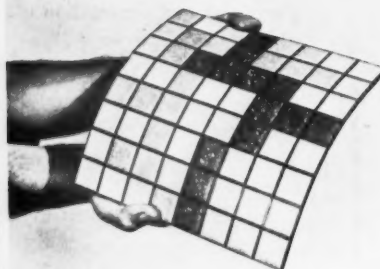
MFR'S DESCRIPTION: sculptured glass units with concave three-dimensional surfaces, designed to create interesting light and shadow, developed.

USES: curtain wall construction.

SPECS/FEATURES: units are hollow; 12" square and 4" thick, with pattern pressed into both faces. Patterns are *Leaf*, *Pyramid*, *Harlequin* and *Wedge*, available clear or with any of twelve colors. Among advantages emphasized are: light transmission; high insulation value; and simplified low-cost installation and maintenance.

AIA FILE NO. 10-F

MFR: PITTSBURGH CORNING CORP.
Circle 201 for further information



CERAMIC MOSAIC TILE IN FLEXIBLE FORM

MFR'S DESCRIPTION: *Cermafex* floor tile is product said to combine resiliency of rubber with permanence of ceramic mosaic tiles.

USES: flooring applications.

SPECS/FEATURES: available in units 9" square, 3/8" thick, in twelve colored patterns. Features include resiliency, color, durability and ease of installation and maintenance. Ceramic units are 1" square and are fused into rubber grid. Mfr describes product as resistant to alkalis, greases, oils and other household cleaning materials.

AIA FILE NO. 23-A

MFR: UNITED STATES CERAMIC TILE CO.
Circle 202 for further information



FUSED LOAD INTERRUPTER SWITCHGEAR

MFR'S DESCRIPTION: line of high-voltage fused load interrupter metalclad switchgear introduced.

USES: high-voltage power distribution in industrial plants, institutions and commercial buildings.

SPECS/FEATURES: line rated as high as 44,500 amps fault-closing and 500 mva short-circuit interrupting at 14.4 kv. Corresponding ratings at 4.16 kv are 60,000 amps fault-closing and 250 mva short-circuit interrupting. Available in ratings from 4.8 kv through 14.4 kv. Generally applied as switching centers and service entrance equipment, line is available in continuous ratings of 200, 400 and 600 amps, fused. Ratings as high as 1,200 amps are available unfused.

AIA FILE NO. 31-D-4

MFR: S&C ELECTRIC CO.
Circle 203 for further information

VINYL/CORK WALL COVERING

MFR'S DESCRIPTION: Cork-Tex is vinyl on cork wall material which retains original appearance after being punctured with thumbtacks, nails, etc.

USES: bulletin board material in schools, etc.

SPECS/FEATURES: consists of cork sheet, 1/4" thick, bonded to 18 gauge vinyl. May be used to cover entire wall or any portion of it. Available in eight washable colors. Furnished in rolls 4' x 72', and in pre-framed boards up to 12' long.

AIA FILE NO. 23-G

MFR: BOND CROWN & CORK DIV.,
CONTINENTAL CAN CO., INC.

Circle 204 for further information

SYNTHETIC MATERIAL EMULATES MARBLE

MFR'S DESCRIPTION: *Cali-Marb* is synthetic product, composed of fibrous glass and polyester resin, to reproduce appearance of marble.

USES: decorative applications as tile, window sills and building columns.

SPECS/FEATURES: available in flat laminations for tiles and window sills and as hollow columns for interior and exterior uses. Shell of columns is rigid to permit concrete or other material to be poured inside as support. Furnished in standard squares and custom sheets.

AIA FILE NO. 8-C

MFR: CALIGARI PRODUCTS

Circle 205 for further information

ADDITIONAL PATTERNS FOR ACOUSTICAL TILE

MFR'S DESCRIPTION: three patterns added to line of acoustical ceiling tile.

USES: ceiling applications.

SPECS/FEATURES: *Fantasy Hush-Tone* has three tones and random miniature perforations on white base. *Clouds* features three-tone abstract design. *Gala Hush-Tone* features random miniature perforations in two sizes; has whiteness for light reflection.

AIA FILE NO. 39-B

MFR: THE CELOTEX CORP.

Circle 206 for further information

BULK FOOD HANDLING UNIT

MFR'S DESCRIPTION: stainless steel bulk feeder announced with large capacity.

USES: large hospitals, hotels, institutions and restaurants.

SPECS/FEATURES: unit stated to hold sufficient food to serve up to 300 meals per load. Features one-piece seamless construction and rounded edges to facilitate cleaning and provide sanitation by eliminating cracks or crevices where bits of food might lodge. All storage compartments but

Here are answers to the most frequently asked questions about Armstrong Acoustical Fire Guard

A RMSTRONG Acoustical Fire Guard is a new kind of ceiling tile that meets code requirements with no additional fire protection. An indication of architectural interest in the product is the number of questions that designers and specifiers have asked about Acoustical Fire Guard.

Q. What makes Acoustical Fire Guard so different from other incombustible ceiling tiles?

A. Acoustical Fire Guard is the only acoustical ceiling tile to receive fire-retardant time-design ratings from Underwriters' Laboratories, Inc. Other tiles, including many made by Armstrong, are rated "incombustible." But they all require some sort of additional fire protection between them and the structural steel above them to meet rigid building codes.

Q. What codes will Acoustical Fire Guard meet?

A. It will meet the nation's strictest codes. It has achieved one-hour, two-hour, and four-hour time-design ratings, depending on the floor-ceiling assembly with which it was used. Acoustical Fire Guard has never failed an Underwriters' Laboratories, Inc., test or been rejected by any code authority.

Q. Isn't it the floor-ceiling assembly, rather than the ceiling, which gets the time-design rating?

A. No. The ceiling carries the same rating as the assembly in which it is tested.

Q. To get local code approval, doesn't the assembly have to be constructed exactly as tested by UL?

A. No. In many cases, local officials will allow variations from the assembly as tested when those variations offer the same or greater fire protection. Thicker bar joists, deeper plenum chambers, various types of metal decks—all will logically be permissible.

Q. Do penetrations for ducts and lighting fixtures cause Acoustical Fire Guard ceilings to lose their fire-retardant ratings?

A. No, they do not. A certain amount of penetration is arbitrarily permissible under most codes. In addition, an Acoustical Fire Guard ceiling with a full complement of ducts and recessed lighting fixtures was successfully tested by Underwriters' Laboratories, Inc.

Q. How does Acoustical Fire Guard compare in cost with other incombustible tiles?

A. The material itself is moderately high in cost. But it can be installed quite economically. An installed Acoustical Fire Guard ceiling costs little, if any, more than a regular fissured mineral fiber tile ceiling. And it generally costs far less than any ceiling of tile and plaster or gypsum board which offers comparable fire protection.

Q. What dollars-and-cents savings can I expect from Acoustical Fire Guard?

A. 10¢-30¢ per square foot, depending on type of building, degree of fire protection required, and type of alternative ceiling being considered.

Q. Does it take more time to install Acoustical Fire Guard?

A. No, it actually requires less time than ordinary fire-retardant ceilings because no delaying "wet" operations are necessary. For example, an elementary school in Delaware was opened three weeks sooner because Acoustical Fire Guard was specified.

Q. Is Acoustical Fire Guard an "experimental" product?

A. Absolutely not! Before it was announced a year ago, Acoustical Fire Guard had undergone months of rigid tests by both Armstrong and Underwriters' Laboratories, Inc. It withstood temperatures far higher than those of any "natural" fire.

And since its introduction a year ago, it has been chosen for millions of square feet of ceiling area in hundreds of buildings across the country. It promises to become the method of obtaining fire-retardant ceilings in the future.

Armstrong ACOUSTICAL CEILINGS

1860-1960 Beginning our second century of progress

Circle 110 for further information

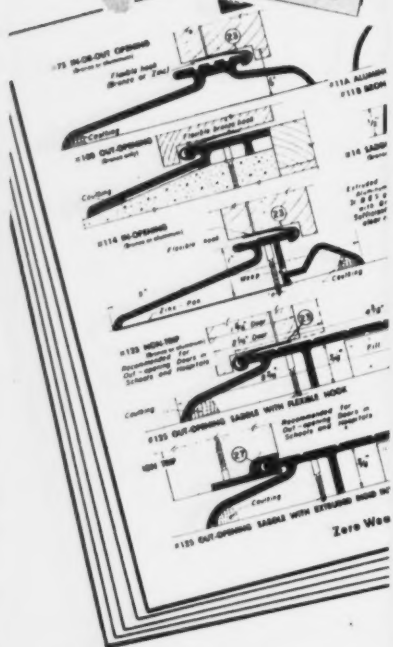
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Architectural & Engineering News

DOOR HARDWARE OFFERED IN COLOR

MFR'S DESCRIPTION: 900 Series lock-set line now offers knobs in color.

USES: interior doors.

SPECS/FEATURES: color knobs are of *Delrin* material by Du Pont; reputed not to stain, peel or rust, and to provide resistance to impact, abrasion and prolonged wear. Inserts are replaceable to permit contrasting of colors.

AIA FILE NO. 27-B

MFR: CHALLENGER LOCK CO.

Circle 216 for further information



ADJUSTABLE NYLON ROLLER CATCH

MFR'S DESCRIPTION: roller catch for doors down to $\frac{7}{8}$ " in thickness, with durable nylon roller and fingertip adjustment, announced.

USES: door installation.

SPECS/FEATURES: designed for facile installation with $\frac{3}{4}$ " bit for both catch and strike. Catch is attached by secure anchor and strike is fastened by single screw. Adjustment is made by twisting nylon roller. Available in bright brass, satin bronze and bright zinc.

AIA FILE NO. 27-B

MFR: STANLEY HARDWARE DIV., THE STANLEY WORKS

Circle 217 for further information

HYDRAULIC HINGES FOR INTERIOR DOORS

MFR'S DESCRIPTION: *Hydro-Hinge*, hydraulic door hinges, originally by Bakewell Products Co., added to hardware line.

USES: interior doors.

SPECS/FEATURES: units described as combining functions of hinges and door closers on interior doors. Installation consists of one hydraulic control hinge and one or more spring hinges; arms, brackets and housing are not required in floor or overhead frame. Closing speed is adjustable.

AIA FILE NO. 27-B

MFR: YALE & TOWNE MFG. CO.

Circle 218 for further information

DOORS/PARTITIONS WITH ACOUSTIC QUALITY

MFR'S DESCRIPTION: *Foldoor* line now includes *Soundguard* folding door and partition units designed to re-

Circle 112 for further information ➤

designed to harmonize with your buildings...

NORTON TRIMLINE SERIES 1500 DOOR CLOSER



- Norton's new Trimline is specially designed to complement the good taste and artistic expression of your buildings. This rugged door closer combines function, beauty and performance.

The Trimline is non-handed, suitable for either interior or exterior surface mounting. It is a compact rack-and-pinion closer—projecting as little as 3 inches from the door. Write for complete details; ask for Manual T.

NORTON®

DOOR CLOSERS

Dept. AE-30, Berrien Springs, Michigan

PRODUCTS, EQUIPMENT, MATERIALS

Sound transmission.

Uses: office, institution and commercial uses.

ECS/FEATURES: sound reduction is achieved because of better insulation within partition itself, and complete perimeter sealing which prevents sound from passing around jambs and operating edges, mfr claims. Partition body is insulated on each side of the frame with $\frac{3}{8}$ " flame-retarded building board panels, laminated to a vinyl coated flexible membrane. Seal at floor and ceiling is reinforced by flexible rubber strips.

FILE NO. 35-H-6

PR: HOLCOMB & HOKE MFG. CO., INC.

Circle 219 for further information

GLASS TRANSCIENCE DOORS

PR'S DESCRIPTION: line of completely assembled, weatherstripped, all glass transience doors introduced.

Uses: commercial and institutional applications.

ECS/FEATURES: mfr claims weather-tightness is assured by built-in, silicone treated wool pile weatherstripping on continuous top and bottom rails, thereby eliminating dust and air infiltration and providing resistance to moisture. Constructed of $\frac{1}{2}$ " $\frac{3}{4}$ " polished plate glass with high resistance to impact. Glass is set into vinyl rubber glazing bead to minimize breakage.

FILE NO. 16-N

PR: VIRGINIA GLASS PRODUCTS CORP.

Circle 220 for further information

LAB/OFFICE AIDS

STAINLESS STEEL FIXTURES FOR LABORATORIES

PR'S DESCRIPTION: stainless steel service fixtures available in Lab-Flo line of laboratory furnishings.

Uses: industrial and educational laboratories.

ECS/FEATURES: items, fabricated of type #316 stainless steel, include brackets and panel flanges with straight serrated tips, and straight supports with wheel handles and color-coded indices. Intended especially for use in fume hoods to resist corrosion.

FILE NO. 35-E

PR: T & S BRASS AND BRONZE WORKS, C.

Circle 221 for further information

PRINTING, PROCESSING MACHINE FOR DRAWINGS

PR'S DESCRIPTION: continuous recycling printer and processor introduced, for "retrievable miniaturization" of engineering drawings.

Circle 113 for further information →

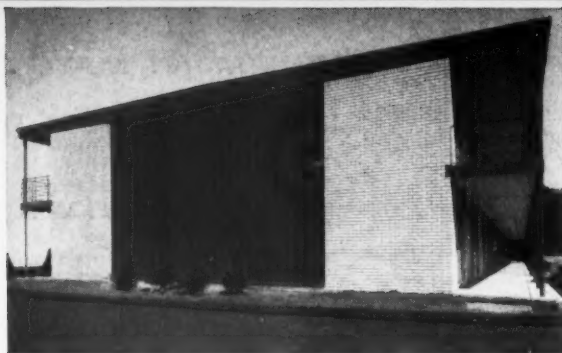


MAHON CURTAIN WALLS

IN NATURAL OR COLORED METALS

provide an ideal combination—
high design potential...
low-budget installation

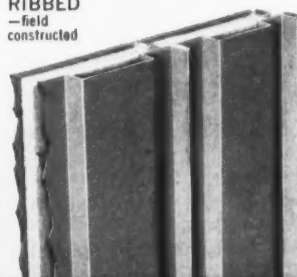
Mahon Curtain Walls of charcoal-gray enamel are functionally and attractively used in this new motel at Plymouth, Mich., General Contractor: Don Primo Co.



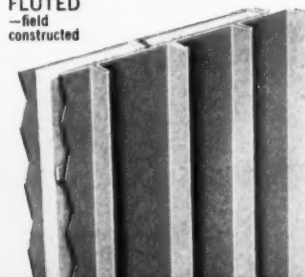
Even used with dissimilar building materials (as shown in this rear view of the Hines Park Motel) Mahon Curtain Walls integrate easily for modern design expression.

The design flexibility of Mahon Metal Curtain Walls gives you a practical answer to many architectural and construction problems. Walls for the long runs of a giant industrial plant... for the touch of individuality in small commercial buildings or for the vast sweep of modern, multi-story buildings... exterior walls that glisten in clean metal or glow in dynamic color... walls that decorate, protect and solidify. Mahon Curtain Walls will meet your every requirement. They can be erected up to 60 feet in height without a horizontal joint... vertical joints are invisible. Quality Metal Walls from Mahon cost no more when specified nor do savings stop with installation—maintenance is low, durability is long. To learn how Fiberglass-insulated Mahon Curtain Walls fit into your project, contact your local Mahon representative, write for descriptive catalog or see Sweet's Files.

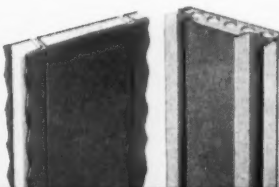
RIBBED
—field
constructed



FLUTED
—field
constructed



FLUSH or FLUTED
PREFAB PANELS



Mahon Curtain Walls are supplied in galvanized, porcelainized, enameled or stainless steel, and aluminum in many finishes, each in three types

THE R. C. MAHON COMPANY / DETROIT 34, MICHIGAN

Manufacturing Plants—Detroit, Michigan and Los Angeles, California.
Sales Engineering Offices in Detroit, New York, Chicago, Los Angeles and San Francisco.
Representatives in all principal cities.

SPEEDING AMERICAN CONSTRUCTION WITH METAL BUILDING PRODUCTS, FABRICATED EQUIPMENT AND ERECTION SERVICES

MAHON

PRODUCTS, EQUIPMENT, MATERIALS

USES: architectural and engineering drafting offices.

SPECS/FEATURES: "retrievable miniaturization" is system to provide advantages of miniaturization without sacrificing visual communication of information. Unit reduces drawings to size sufficiently readable in ultimate prints. Prints can be made as positives or negatives, on paper or film, according to mfr. Reported to accept copy up to 42" wide by any length. Speed is variable from 3 to 30 lineal feet per minute.

AIA FILE NO. 35-H-3

MFR: PARAGON-REVOLUTE DIV., CHARLES BRUNING CO., INC.

Circle 222 for further information

TINTED, LIGHTWEIGHT SKETCHING PAPER

MFR'S DESCRIPTION: tinted yellow sketching paper developed as "talking" paper for low-cost reproduction. USES: "talking" paper for sketches and roughs.

SPECS/FEATURES: paper is inexpensive; takes pencil, charcoal or crayon equally well, according to mfr. Said to produce sharp copies in standard diazo, blueprint and office copy machines. Available in 50 yd rolls, 42" and 48" wide.

AIA FILE NO. 35-H-3

MFR: KEUFFEL & ESSER CO.

Circle 223 for further information

DUCT WORK FOR LABORATORY HOODS

MFR'S DESCRIPTION: light weight duct work developed to carry off corrosive, laboratory fumes.

USES: laboratory applications.

SPECS/FEATURES: made of resin bonded fibrous glass, units are light in weight and resistant to corrosive attacks, according to mfr. Maintenance or painting are not required. Available in standard sizes, including fittings for field erection.

AIA FILE NO. 35-E

MFR: DU VERRE, INC.

Circle 224 for further information

ROOF APPLICATIONS

ROOF DECK LINE EXPANDED

MFR'S DESCRIPTION: standard 24" wide roof deck section added to steel roof deck line.

USES: roof construction.

SPECS/FEATURES: section is known as quad-rib section or closed rib deck. Added width said to expedite roof installation up to 50 per cent. Mfr states it can be used in bonded roofs with 1/2" or more insulation below

← Circle 113 for further information

for
"unit-built"
locks . . .

russwin doorware

The Russwin Beaulieu Design Unilock — Installs as a factory assembled unit in a shallow notch in the door. Rugged construction throughout. Smart new lever handle design. A symphony in lockmaking. For details on complete line, write Russell & Erwin Division, The American Hardware Corporation, New Britain, Connecticut.



RUSSWIN

Circle 114 for further information

IT'S EASY TO "PINPOINT" THE PROPER DRAIN WITH



Series No. 4550
"Levelez" Roof Drain



Series No. 7500
"Super-Flow" Floor Drain

Isn't it satisfying to know that wherever you indicate a drain... whatever the drainage condition... from roof to basement... you can get the exact drain you need from Josam? You can save countless hours of time... avoid guesswork and error... assure maximum service on every job, simply by checking with Josam first. Don't waste a minute when you have to "pinpoint" any plumbing drainage product — call Josam. You'll be time and money ahead!

Write for Manual SK for roughing details on Josam Products.

JOSAM MANUFACTURING CO.
Dept. AN-3, Michigan City, Indiana

West Coast Distributors
JOSAM PACIFIC CO., 765 Folsom St.,
San Francisco, Calif.

REPRESENTATIVES IN ALL PRINCIPAL CITIES



Circle 115 for further information

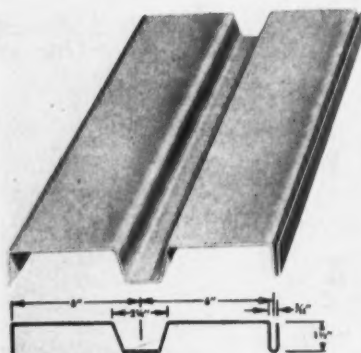
PRODUCTS, EQUIPMENT, MATERIALS

roofing belt. Installed by welding to each structural support on 12" centers laterally.

AIA FILE NO. 12-C

MFR: BUILDING PRODUCTS DIV., THE R. C. MAHON CO.

Circle 225 for further information



ROOF DECK AND UTILITY PANELS

MFR'S DESCRIPTION: *Steeldek*, line of steel decking and insulated utility panels, introduced.

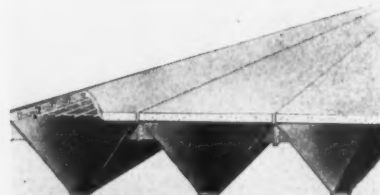
USES: roofing applications where thick insulation is to be used.

SPECS/FEATURES: available painted or galvanized, in two styles: standard and wide rib. Ribs of both are 1½" deep. Designed to carry relatively heavy loads for spans up to 9', material can be used under certain conditions for spans up to 10' 0", according to mfr. Painted decking is supplied in lengths up to 30', and galvanized up to 50'. Utility panels are of galvanized steel, furnished knocked down or totally fabricated and insulated.

AIA FILE NO. 12-C

MFR: PENN METAL CO., INC.

Circle 226 for further information



PRE-FABRICATED TRIANGULAR GIRDER

MFR'S DESCRIPTION: announcement made of development of composite, pre-fabricated triangular girder with top flange formed of reinforced concrete; webs and bottom flange of steel.

USES: construction of roofs, floors and bridge decks.

SPECS/FEATURES: top flange reported

as finished and watertight, ready for immediate use as roof, floor or bridge deck. Mfr claims erection time is reduced. Girders may be erected under any type of weather conditions. Top flange is designed to take standard highway loads and meet bridge construction inspection requirements.

AIA FILE NO. 13-C

MFR: SHLAGRO STEEL PRODUCTS CORP.

Circle 227 for further information

ACOUSTICAL/INSULATING MATERIAL FOR ROOF DECKS

MFR'S DESCRIPTION: acoustical and insulating *Formboard* developed to provide noise control, thermal insulation value and finished interior.

USES: perlite, vermiculite and gypsum poured roof decks.

SPECS/FEATURES: available perforated or unperforated, painted or unpainted 32" wide, in lengths between 72" and 120". Material is 1" thick; consists of ½" thick natural board laminated with vapor permeable glue to ½" thick asphalt impregnated insulation board. Has soft white finish to provide light reflection. May be painted.

AIA FILE NO. 39-B

MFR: SIMPSON LOGGING CO.

Circle 228 for further information

LIGHTING

RESIDENTIAL LIGHTS FOR YARDS/PATIOS

MFR'S DESCRIPTION: *Lawn-Glo* lighting fixtures announced for lighting outdoor areas.

USES: areas such as lawns, patios, drives and entrances.

SPECS/FEATURES: described as available in automatic or manually operated models, with or without photoelectric control. Available with weather resistant metal or redwood standards. Operate on standard 120 v house circuits and use standard household incandescent lamps. Maintenance said to be low.

AIA FILE NO. 31-F-22

MFR: LINE MATERIAL INDUSTRIES, McGRAW-EDISON CO.

Circle 229 for further information

LIGHTING FIXTURE FOR LANDSCAPE USES

MFR'S DESCRIPTION: *Flower-Glo* is garden lighting fixture for landscape lighting.

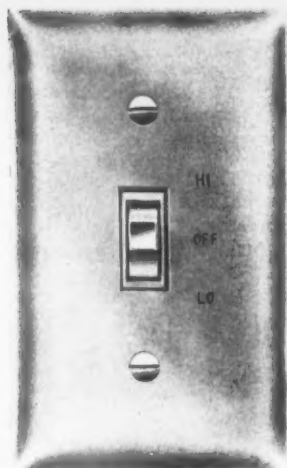
USES: exterior residential and commercial applications.

SPECS/FEATURES: unit is weather-resistant, metal decorative flower with silvered bowl bulb. Stem can be raised or lowered to place light at 32", 20" or 12" heights.

AIA FILE NO. 31-F-22

MFR: SILVRAY LIGHTING, INC.

Circle 230 for further information



ELECTRONIC LIGHT CONTROL SWITCH

MFR'S DESCRIPTION: *Hi-Lo Dimswitch* is electronic light control switch which operates directly, without use of rheostat.

USES: rooms where low light levels are desired, e.g., children's rooms, hospitals, restaurants, etc.

SPECS/FEATURES: said to offer 100 per cent and 30 per cent of light. Has no fixed cycle; "off" is center position between "hi" and "lo." Mfr states unit may replace any existing switch for incandescent lamps, single and three-way or four-way switches. Available in regular or interchangeable QST size for single or multiple gang boxes. Can be used on 2" thin walls, back-to-back.

AIA FILE NO. 31-F-33

MFR: SLATER ELECTRONICS CORP.

Circle 231 for further information



STAINLESS STEEL CONTROL CABINET

MFR'S DESCRIPTION: stainless steel emergency control panel offered.

USES: commercial, public and institutional buildings.

SPECS/FEATURES: stated to meet requirements for emergency lighting of recent National Electrical Code.

Since panels are often mounted in lobbies, units are recessed to provide unobtrusive appearance. Equipped with cylinder lock and piano hinged glass frame. Available with from 1 to 18 signal lights and switches.

AIA FILE NO. 31-F

MFR: MORRIS KURTZON, INC.

Circle 232 for further information

CONCRETE

SINGLE COMPONENT CEMENT COMPOUND

MFR'S DESCRIPTION: *Larsen-Mix* developed for concrete finishing and patching.

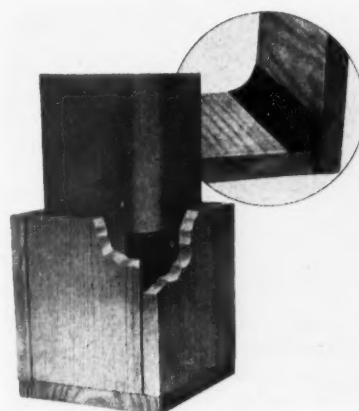
USES: floor underlayment, patching of concrete floors, steps, walls, etc.

SPECS/FEATURES: material is single component, dry-mix cement compound to which user adds water, mixes and trowels onto surface. Said to produce smooth, durable and strong patch. Has tensile strength of 1,400 psi; compressive strength of 4,600 psi; and bond strength of 490 psi. Will bond to concrete, steel, ceramic tile, glass, cinder block and other surfaces.

AIA FILE NO. 4-N

MFR: LARSEN PRODUCTS CORP.

Circle 233 for further information



SMOOTH CORNERS FOR POURED CONCRETE

MFR'S DESCRIPTION: *Green Streak Corner Former* is pre-molded plastic material designed to produce smooth, uninterrupted corner to poured concrete.

USES: uses on columns, pillars, panels and other types of precast concrete work.

SPECS/FEATURES: designed to provide smooth, rounded 1" radius corner. Can be installed on standard forms; can be used many times, according to mfr. Elimination of need for special forming, chipping and refinishing cited by mfr as advantage.

AIA FILE NO. 4-D

MFR: SERVICISED PRODUCTS CORP.

Circle 234 for further information

BE AN EXPERT ON DRUMS

WITH ONE EASY LIGHTING LESSON!



GLASS DRUM UNITS
MAY LOOK ALIKE, BUT ONLY

Swingaway maintenance!
Hinged ring and chain for easy relamping and cleaning.

OTHER DRUM UNITS

B 1218
Long-Bay Ellipse!
Intense narrow-beam light,
specular Alzak reflector.

B 1210
Metal drum units, concave
prismatic lens
with genuine Alzak reflectors.

B 1192
Prison and psychiatric units;
east guard,
shatter-proof
prismatic lens,
tamper-proof
screws.

B 1618
Gym drum units,
with guard or
louver, single to
quadruple
mountings.

GUTH BRASCOLITES HAVE HIGH EFFICIENCY, CONTOUR ALZAK REFLECTORS

Real parabolic-design provides permanent, efficient light control. Unlike flat-pan or aluminum-foil types, Alzak contour reflectors can't come unglued, tarnish, or become permanently discolored from lamp heat. Super white opal glassware has satin-finish ceiling ring. Unit gives excellent downlight, plus good ceiling illumination above and around the fixture. Models to accommodate up to three 100-watt lamps. Complete selection available.



LIGHTING
since 1902

brascolite

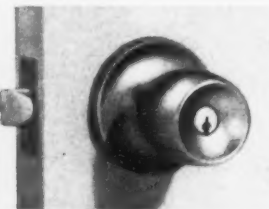
THE EDWIN F. GUTH COMPANY • ST. LOUIS 3, MISSOURI

Circle 116 for further information

for heavy-duty
cylindrical
locks...

russwin doorware

The Stilemaker Comet Cylindrical Lock — Beauty and brawn! Heavy-weight construction... smart, modern styling. Abuse-proof: Heavy steel chassis, seamless tubular shank, 3-point shank bearing. For details on complete line, write Russell & Erwin Division, The American Hardware Corporation, New Britain, Connecticut.



Circle 117 for further information



DOES THIS HAPPEN
TO YOU?

Rotolite

is the quickest most inexpensive way you EVER heard of to make white copies of anything translucent. Takes SO little space. Just Hang it on the wall. You'll say "Boy! what a time-saver and cost-saver! I sure need one in My office!"

PRICES:

18" \$129.50. 27" \$149.50. 42" \$189.50
Slightly higher, Denver and West.
f.o.b. Stirling, N.J.

ROTOLITE SALES CORP.

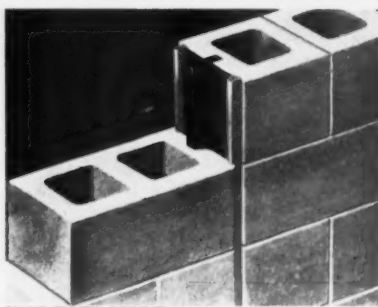
STIRLING, N. J.

Write for folder.

Circle 118 for further information



PRODUCTS, EQUIPMENT, MATERIALS



WIDE FLANGE CONTROL JOINT

MFR'S DESCRIPTION: rubber control joint with wide flanges announced.

USES: simplification of caulking process in concrete block wall construction.

SPECS/FEATURES: joint resists cracking, oil or solvents and weather conditions, according to mfr. Announced as companion product to masonry wall reinforcing, unit reportedly expands and contracts with joint, maintaining tight seal.

AIA FILE NO. 4-E-11

MFR: DUR-O-WAL DIV., CEDAR RAPIDS BLOCK CO.

Circle 235 for further information



CHANNEL SLABS WITH STEEL FURRING MEMBERS

MFR'S DESCRIPTION: long-span concrete channel slabs with built-in steel furring members announced.

USES: floor and roof construction.

SPECS/FEATURES: available in lengths to 32', units are constructed with continuous nailing member strip inserted in one leg. Mfr states slabs are 2' wide to obtain nailing surface on 24" centers. Strips reportedly permit mechanically fastening 1/2" gypsum board directly to channel without need for intermediate furring strips.

AIA FILE NO. 4-K

MFR: GEORGE RACKLE & SONS CO.

Circle 236 for further information

HVAC

SMALL MODELS FOR AC LINE

MFR'S DESCRIPTION: five small econ-

omy models added to PAC line of packaged air-conditioners.

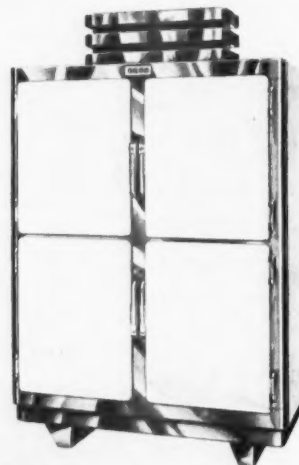
USES: air-conditioning applications.

SPECS/FEATURES: models, of evaporative condenser type, have capacities of 25, 30, 40, 50 and 60 tons; feature smaller outside casings and include multiple compressor units, according to mfr. Equipped with 10 and 15 hp compressors.

AIA FILE NO. 30-D

MFR: ACME INDUSTRIES, INC.

Circle 237 for further information



REFRIGERATOR/FREEZER UNITS ARE CONVERTIBLE

MFR'S DESCRIPTION: Series MU refrigerator units developed.

USES: in hotels and other institutions.

SPECS/FEATURES: units are installed as medium temperature (38°F) refrigerators but can be converted to freezers (0°F) without complicated electrical or mechanical installation, according to mfr. Line provides range of cabinets which are installed initially with medium temperature "plug" unit. As need for freezer space increases, "plug" can be removed and exchanged for low temperature unit with minimum of effort. Cabinets available in one, two, three, or four-door sizes; may be equipped with any of standard features.

AIA FILE NO. 30-F-6

MFR: KOCH REFRIGERATORS, INC.

Circle 238 for further information

COOLING TOWER UNIT FOR CHEMICAL CONTROL

MFR'S DESCRIPTION: Chemicator is closed reservoir, mounted on equipment, to feed chemical treatment into circulating water systems of cooling towers and evaporative condensers.

USES: prevent deterioration of cooling towers and condensers.

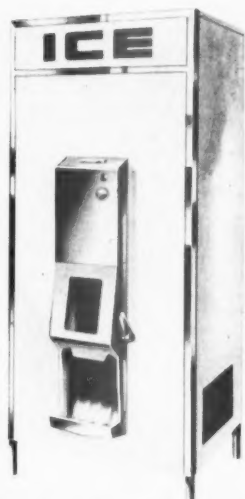
SFFCS/FEATURES: unit is small, closed

reservoir through which portion of recirculating water flows. Briquettes of polyphosphates and organic chelates are contained in plastic tube to prevent formation of scale, organic corrosion, rust, algae and slime. Briquettes are fed by gravity into water; they dissolve and are carried throughout system.

AIA FILE NO. 30-F

MFR: ERLIN PRODUCTS CO.

Circle 239 for further information



ICE DISPENSER REQUIRES LITTLE FLOOR SPACE

MFR'S DESCRIPTION: automatic ice dispensing machine announced.

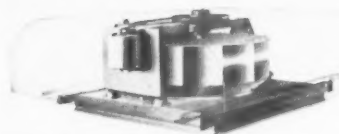
USES: in institutions such as hospitals.

SPECS/FEATURES: features automatic making, storing and push button delivery of open center type ice cubes. Cubes are made under water, stored in air-tight compartment and delivered in sterile containers. Requires 36" x 34" x 86" area, permitting placement in most convenient location. Produces up to 400 lbs of ice per 24 hr period.

AIA FILE NO. 30-F-4

MFR: YATES-AMERICAN MACHINE CO.

Circle 240 for further information



LOW PROFILE ROOF VENTILATORS

MFR'S DESCRIPTION: CKV line announced as low silhouette line of powered roof ventilators.

USES: schools, institutions, commercial and industrial buildings.

SPECS/FEATURES: typical 9' x 9' unit is just over 2' high. Features stressed include low profile, maximum effi-

There's more to selecting water coolers than meets the eye . . .

LOOK BEYOND THE OBVIOUS

It will pay you to consider the *total* value found only in General Electric water coolers—that is, the best combination of performance, appearance, price, delivery, warranty protection, and service.

You'll find General Electric water coolers are years-ahead in offering this **TOTAL VALUE**. General Electric coolers feature clean, modern lines, a stainless steel top, and a harmonious gray finish to fit into any décor. They're economical too! Thirteen models (hot-and-cold, pressure and bottle types) are moderately priced. Operating costs are negligible.

CHECK THE YELLOW PAGES for your General Electric distributor. He can deliver the units you need immediately. A written one-year warranty on all parts and five-year replacement agreement on the refrigeration system help you avoid major repair

costs. Also, nationwide General Electric service tenters are always close at hand.

Add to this General Electric's long years of leadership with water coolers and you can see that only General Electric gives you **TOTAL VALUE** for the water coolers you buy. 761-4



GENERAL  ELECTRIC

Circle 119 for further information

HAVE YOU BEEN IN THE NEWS?

Architectural & Engineering News, that is

120 manufacturers of building products, equipment and materials and their advertising agencies have placed advertising space in the first fifteen issues of A&E NEWS.

For a list of companies, 1960 media file, rates and additional information, please contact any of our offices listed in the Ad Index.



NEEDLESS STEPS
ELIMINATED IN
MOVING PEDESTRIAN TRAFFIC
HORIZONTALLY OR
ON AN INCLINE
WITH COMPLETE
SAFETY . . .

SPEEDWALK & SPEEDRAMP

PASSENGER CONVEYOR SYSTEMS

Stairways become beauty ways when they're glamorized by the "Magic Carpet" of SPEEDWALK and SPEEDRAMP Passenger Conveyor Systems. Beauty is only part of the story, however, for SPEEDWALK and SPEEDRAMP Systems provide features of versatility, safety, economy and public good will, unmatched by architecturally outdated "moving stair" type conveyances.



WRITE FOR BULLETIN 457

SPEEDWALK DIVISION

STEPHENS-ADAMSON MFG. CO.
72 RIDGEWAY AVENUE • AURORA, ILLINOIS

PLANTS LOCATED IN: LOS ANGELES, CALIFORNIA
CLARKSDALE, MISSISSIPPI • BELLEVILLE, ONTARIO

Circle 120 for further information

for
precision-made
mortise locks

russswin doorware

The Russwin Ten-Strike Cosmic Design Mortise Lock — Superb quality and styling. All parts precision-made and built for long, trouble-free, heavy-duty service. This versatile lock can be adapted to any function. For details on complete line, write Russell & Erwin Division, The American Hardware Corporation, New Britain, Connecticut.



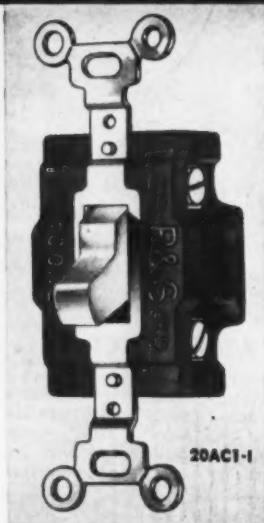
RUSSSWIN

Circle 121 for further information

SPECIFIED FOR RUGGED DUTY

P&S
**SUPER
AC
SWITCHES**

- Extra large terminal screws.
- Extra large silver buttons.
- Can be used to full rated capacity on inductive loads.
- Contacts in upright position mounted at point of least vibration.
- Available in 15 and 20 Amp. types.



Send for complete catalog, Dept. AE-36

P&S
PASS & SEYMOUR, INC.
SYRACUSE 9, NEW YORK

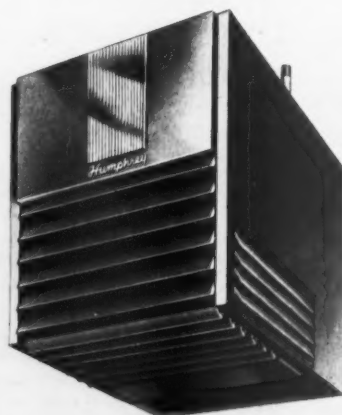
80 E. 42nd St., New York 17, N.Y. 3440 N. Polaris Rd., Chicago 51, Ill. In Canada: Restrow Electric Co., Ltd., Toronto, Ontario

Circle 122 for further information

30

PRODUCTS, EQUIPMENT, MATERIALS

ciency, minimum maintenance and sturdy, welded construction. Wide range of standard sizes available. AIA FILE NO. 12-K
MFR: HIRSCHMAN-POHLE CO., INC.
Circle 241 for further information



SUSPENDED GAS UNIT HEATERS

MFR'S DESCRIPTION: medium and high-capacity suspended, multi-directional, automatic gas unit heaters offered.

USES: commercial and industrial space heating.

SPECS/FEATURES: features include top-mounted fans, "open-top" heat exchanger and interchangeable louvers and panels to provide thorough and flexible heating with large radiating surface and 3° average floor-to-ceiling temperature differentials. Offered in eleven sizes ranging from 60,000 to 270,000 btu.

AIA FILE NO. 30-C-43

MFR: HUMPHREY DIV., ARKLA AIR CONDITIONING CORP.

Circle 242 for further information

MISCELLANY

ADDITIONAL COLORS FOR PLASTIC COVERINGS

MFR'S DESCRIPTION: expanded line of decorative laminated plastics has seven additional solid colors.

USES: counter, table tops, etc.

SPECS/FEATURES: added tones are *Cocoa*, *Umbra*, *Antique White*, *Champagne*, *Celadon*, *Azure* and *Signal Red*. Mfr claims wide applications in residential and commercial establishments.

AIA FILE NO. 35-C-12

MFR: FORMICA CORP., SUBS. AMERICAN CYANAMID CO.

Circle 243 for further information

MOUNTED CERAMIC MOSAIC TILE

MFR'S DESCRIPTION: *Perma-Bak* is back mounted ceramic mosaic tile, said to reduce installation time.

USES: assorted tile applications.

SPECS/FEATURES: mesh mounting reportedly facilitates transporting, handling and installation of tile. Savings of 50 per cent in labor costs reported. Tile sheets are stiffer; don't sag on walls and require less alignment of individual tiles, according to mfr.

AIA FILE NO. 23-A

MFR: AMERICAN OLEAN TILE CO., INC.

Circle 244 for further information

INORGANIC PAPER LINE FOR INSULATION

MFR'S DESCRIPTION: *Crystal M* is line of insulation papers, inorganic, high temperature and fire resistant, prepared from synthetic mica.

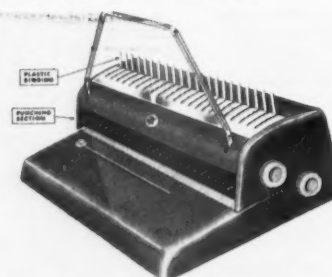
USES: as fire resistant material, thermal and electrical insulation.

SPECS/FEATURES: three forms available—a 100 per cent synthetic mica paper, and two others containing fibers introduced during manufacturing process. Available at present in 5 mils only. Basic material is described as white; with index of refraction of 1.5 and bulk density of 2.7 grams/cm³. Melting point is above 1,900° F if heated in closed system; converts to higher melting ceramic body when heated in open system. Is insoluble in water and organic solvents, according to mfr.

AIA FILE NO. 37

MFR: MINNESOTA MINING AND MFG. CO.

Circle 245 for further information



OFFICE MACHINE COMBINES PUNCHING AND BINDING

MFR'S DESCRIPTION: *Combo* is 12", portable machine which combines punching and binding functions in single, desk-top unit.

USES: office applications where binding volume does not require power equipment.

SPECS/FEATURES: designed to sell for under \$200, unit said to afford economical binding method for personnel records, literature, technical data, booklets, manuals, etc. Plastic binding assures pages turning easily and lying flat.

AIA FILE NO. 35-H-4

MFR: GENERAL BINDING CORP.

Circle 246 for further information

LITERATURE

Literature cited in this department is available from various manufacturers and associations free of charge, except where indicated. To obtain copies, circle the keyed numbers on the reader service cards facing pages 1 and 48.

GROUTING MANUAL

Recognizing shrinkage as the principal cause of grout failure, current manual explains proper application of non-shrinking grout. Manual describes grouting techniques with *Embeco* grout: methods of grouting different types of equipment; mixing and placing of grout and cold and hot weather grouting; information on recommended mixes and estimating tables; and actual installations. (16 pp.)

AIA FILE NO. 3-L-7

MFR: THE MASTER BUILDERS CO. DIV., AMERICAN-MARIETTA CO.

Circle 300

DORMITORY FURNITURE

Manual for Dormitory Furniture Planning, is publication offered to architects and administrators, intended to serve as reference work on subject, rather than as catalog of furnishing items. The detailed and comprehensive information provided is applicable to residence halls in colleges, universities, hospitals and similar institutions. Suggested plans are presented for single rooms and suites, for one and two students. Detailed section on planning presents such factors to be considered as climate, curricula, economic status and others. Furniture construction and features are included. Plans intended to be suggestive, not standard or stereotyped. Specifications included. Price is \$3.00. Enclosing payment, write directly to Sligh-Lowry Contract Furniture Co., 174 E. 11th St., Holland, Mich. (42 pp.)

AIA FILE NO. 28

MFR: SLIGH-LOWRY CONTRACT FURNITURE CO.

Write mfr directly

INDUSTRIAL GLASS

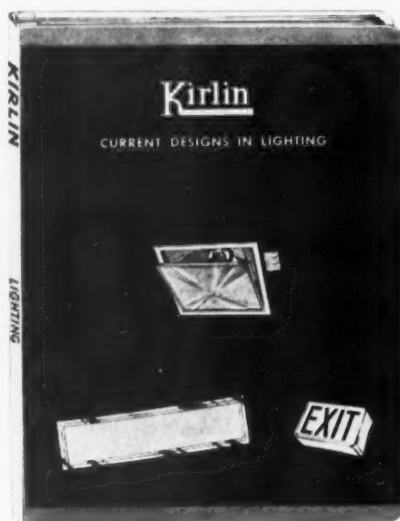
Recent brochure lists types and advantages of glass for industrial purposes. Covered are figured glass, wired glass and *Coolite* glass, with glare reducing finish. Both photographs and text provide information on heat absorption, finishes, glare reduction, dimensions, light distribution and specifications. Installation



DORMITORY FURNITURE



INTERIOR ILLUMINATION



INTERIOR FIXTURE CATALOG

recommendations are included, as are line drawings depicting results of heat absorption tests. (12 pp.)

AIA FILE NOS. 26-A-3; 26-A-5; 26-A-6

MFR: MISSISSIPPI GLASS CO.

Circle 301

CERAMIC MOSAIC PATTERNS

Booklet currently available contains ideas for unusual wall and floor treatments in both residential and non-residential applications, through ceramic mosaic patterns and blends. Color plates of 22 patterns are included, and accompanying text explains effects possible through substitution of colors, textures, sizes, etc. (12 pp.)

AIA FILE NO. 23-A

MFR: AMERICAN OLEAN TILE CO., INC.

Circle 302

LIGHTING

INTERIOR ILLUMINATION

Current catalog presents review of interior lighting fixtures. Tabular data intended as aid in lighting layouts and selection of correct fixtures for desired effect. Units are categorized under (1) downlighting, (2) diffuse lighting, (3) wall lighting and (4) accent lighting. Each category lists available fixtures, and provides such pertinent information as appropriate ceiling heights, spacing of units, types of ceiling, ceiling slope and installation clearances. (16 pp.)

AIA FILE NO. 31-F-23

MFR: CENTURY LIGHTING, INC.

Circle 303

LIGHTING CATALOG

Catalog A offered, as reference source on lighting fixtures. In addition to descriptions, photographs, illustrations, drawings and specifications are included. Request *Catalog A* on letterhead from Heifetz Co., Clinton, Conn. (64 pp.)

AIA FILE NO. 31-F-2

MFR: HEIFETZ CO.

Write mfr directly

INTERIOR FIXTURE CATALOG

Current Designs in Lighting, is catalog covering built-in, interior lighting fixtures. Such technical data as installation information, lighting

curves and chart to estimate lighting intensity is included. Photographs show suggested installations in schools, hospitals, homes, churches, public buildings, etc. (104 pp.)

AIA FILE NO. 31-F-23

MFR: THE KIRLIN CO.

Circle 304

EMERGENCY FLOODLIGHTING

Recent catalog illustrates line of lightweight, heavy duty and vapor-tight cast aluminum, portable emergency floodlights for use in public utilities, by industrial emergency squads, etc. Also illustrated are 200-500 watt power beam portables in red finish for plant, airport and municipal fire departments. (10 pp.)

AIA FILE NO. 31-F-26

MFR: STONCO ELECTRIC PRODUCTS CO.

Circle 305

RESIDENTIAL LUMINAIRES

Depicted in current booklet are recent models in line of indoor and outdoor residential luminaires. UL approved units for exteriors include ceiling and wall attached fixtures with prismatic refractors for glare reduction. Interior units are semi-recessed fixtures for ceilings, said to be easy to install and maintain. Photographs are included. (4 pp.)

AIA FILE NO. 31-F

MFR: HOLOPHANE CO., INC.

Circle 306

LIGHTING FIXTURES

Available catalog describes line of prewired, recessed lighting fixtures designed specifically for use in concrete pour construction. Units constructed so wiring may be done before or after concrete pouring. Specification charts and housing-plan views are presented. Also illustrated is variety of styles with choice of round or square frames and glass. (4 pp.)

AIA FILE NO. 31-F

MFR: PRESCOLITE MFG. CORP.

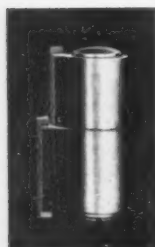
Circle 307

RESIDENTIAL LIGHTING

Light Bulbs and Fluorescent Tubes for the Home, a reference guide, now available. Booklet contains comprehensive, non-technical information on



for doors
to swing
true...

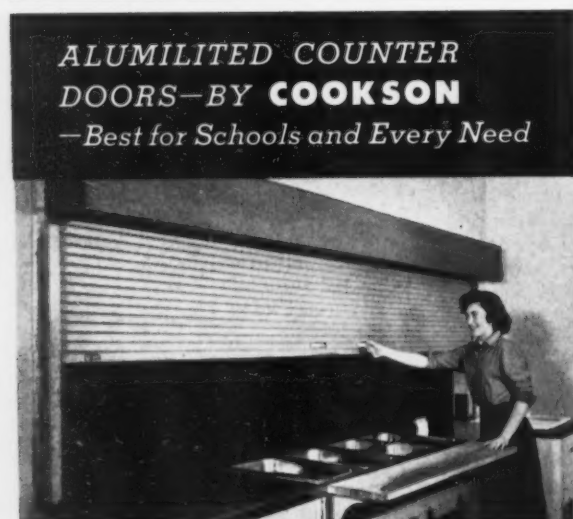


russwin doorware

Ruswin Adjustable Pivot Hinges — Built for lifetime wear and trouble-free support on heavy doors in high-frequency service. Simple adjustment raises or lowers doors for sag correction and precise weight distribution. Prelubricated roller and ball bearings. For details on complete line, write Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.



Circle 123 for further information



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Circle 124 for further information

many types of light bulbs used in residential applications. Such topics as bulb finishes and coatings, applications for tinted light bulbs and uses for silvered bowl bulbs are treated. Variety of bases, shapes and sizes of bulbs are discussed, with drawings to illustrate various types. (15 pp.)

AIA FILE NO. 31-F-21

MFR: LAMP DIV., WESTINGHOUSE ELECTRIC CORP.

Circle 308

ELECTRICAL UNITS

CONTROL TRANSFORMERS

Bulletin 14-BL01, on control transformers, affords information covering construction of three designs: open core construction with leads; end bell enclosed types; and enclosed types for direct conduit connection. Reference chart is included showing per cent of rated load and secondary voltage drop for units used for intermittent or duty-cycle applications. Chart said to eliminate need of calculating every application on involved engineering formula. (4 pp.)

AIA FILE NO. 31-B

MFR: ACME ELECTRIC CORP.

Circle 309

CAST ALUMINUM HOUSINGS

Design information, detailed drawings, photographs and dimension charts for line of cast aluminum housings and junction boxes presented in topical catalog. Housings described as explosion and weather proof. Units are of cast aluminum; said not to rust, are non-magnetic and spark proof. Also included is section on housings with glass windows for instruments and meters. (16 pp.)

AIA FILE NO. 31-C-71

MFR: ADALET MFG. CO.

Circle 310

CIRCUIT BREAKER BULLETIN

Bulletin now available, featuring type TE (symmetrical terminal), TEF and TJL molded case circuit breakers. Photographs of units, selection, application and ordering information, illustrations and outline drawings are presented. (4 pp.)

AIA FILE NO. 31-D-4

MFR: GENERAL ELECTRIC CO.

Circle 311

CIRCUIT BREAKER CATALOG

Revised catalog for 1960 contains information on Speedfax standard and engineered distribution equipment for industrial plant and commercial building electrical distribution systems. Sections provide extensive in-

LITERATURE

formation on (1) molded case circuit breakers, (2) individually enclosed low-voltage power circuit breakers and (3) engineered products, such as transformers, interrupter switches, high and low voltage switchgear and testing devices. Descriptions, prices, selection and application, available types, ratings and accessories are provided for units. (58 pp.)

AIA FILE NO. 31-D-4

MFR: I-T-E CIRCUIT BREAKER CO.

Circle 312

ALUMINUM

ALUMINUM GRATINGS

Current folder describes Unigrip and Duogrip aluminum gratings for various applications in marine and industrial areas. Units are extruded in one piece from aluminum alloy. Folder lists features of units and includes tabular design information. Gratings are pictured with fasteners. (6 pp.)

AIA FILE NO. 14-A-1

MFR: LISKEY ALUMINUM, INC.

Circle 313

ALUMINUM FOIL USES

Book with over 350 illustrations offered, fully describing aluminum foil applications and properties. Index, cross referencing, table of contents and glossary are included in book which is intended to suggest new foil packages and products and expand on conventional items. First four chapters present uses, surface design techniques, description of production and data on properties and availability. Remaining six chapters describe basic converting processes and equipment used for aluminum foil: printing, forming, fastening, laminating, extrusion coating and coating. Requests for complimentary copies should be made on letterhead directly to Kaiser Aluminum & Chemical Sales, Inc., Oakland, Calif.; personal copies are \$12.50. (244 pp.)

AIA FILE NO. 15-J

MFR: KAISER ALUMINUM & CHEMICAL SALES, INC.

Write mfr directly

ALUMINUM ALLOY SELECTION

Aluminum for Architecture, is compilation of information to assist in selection of aluminum alloys and surface finishes. Among data presented are: guide to mechanical finishes, with listing of mfr's designations and NAAMM counterparts; descriptions of textured, bright and satin surfaces; electrochemical and chemical finishes; applied finishes, including porcelain enamel, baked enamel and primers. Recommended protective

measures against electrolytic corrosion, maintenance of aluminum and engineering properties of aluminum alloys are also included. (20 pp.)

AIA FILE NO. 15-J

MFR: OLIN MATHIESON CHEMICAL CORP.

Circle 314

ANODIZING PAMPHLET

Questions and Answers About Anodizing, is current pamphlet devoted to posing and answering questions relative to anodizing of aluminum. Pamphlet answers such questions as: Can anodized parts be formed? Does anodizing change the dimension of a part? What colors are available in color anodizing and how light fast are they? What alloys can be anodized? (8 pp.)

AIA FILE NO. 15-J

MFR: REYNOLDS METALS CO.

Circle 315

ROOFING/SIDING

Industrial Roofing and Siding is current publication dealing with use of aluminum roofing and siding for industrial building construction. Charts, line drawings and photographs give details on ribbed siding, V-beam roofing and siding, corrugated roofing and siding, insulated sandwich walls, flashing and fasteners and others. Suggested specifications included. (12 pp.)

AIA FILE NO. 12-C

MFR: KAISER ALUMINUM & CHEMICAL SALES, INC.

Circle 316

STEEL

STEEL JOISTS

Open-web steel joists, steel roof deck and *Cecor* centering for construction of light weight roof and floor systems are described in booklet for 1960. Tables of available dimensions, allowable loading, specifications and recommended handling and erecting procedures are included. (28 pp.)

AIA FILE NO. 13-G

MFR: CECO STEEL PRODUCTS CORP.

Circle 317

STEEL USE IN SCHOOLS

Structural Steel for Schools—A Symposium, is offered to architects, engineers, school board members, etc., who are interested in economical school construction. Booklet is reprinted from Proceedings of 1959 National Engineering Conference; presents addresses delivered by the following architects: Richard L. Aeck, of Aeck and Associates, Atlanta, Ga.; Charles R. Colbert, of Colbert & Lowry & Associates, New Orleans, La.; Philip H. Hiss, of Philip H. Hiss Associates, Inc., Sarasota, Fla.; and Wallie E. Scott, of Caudill, Rowlett and Scott, Houston,

Tex. Addresses treat of utilization of steel in school design, its favorable attributes which can influence planning of function, economy, environment, etc. (20 pp.)

AIA FILE NO. 13

ASSN: AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC.

Circle 318

STAINLESS STEEL BOOKLET

Stainless Steels for Architecture, is current booklet intended to provide designers and specification writers a summary of current data on stainless steels for utilization of this metal at minimum cost. Included in coverage: photographs showing role of steel in contemporary architecture, through recent notable installations; fundamental steel composition; types; selection of best form and size; selection of efficient thicknesses; finishes; fabrication; surface protection; stainless steel building products; and guide for specifying stainless steel. Glossary of terms is appended. (30 pp.)

AIA FILE NO. 15-H-1

MFR: ARMCO STEEL CORP.

Circle 319

STEEL ROOF CONSTRUCTION

Meyer steelforms, rigid, deep-drawn units for use in forming concrete joist slab construction, are described in current manual. Manual contains tabular data and descriptions of units of dome, flange, adjustable and long-form types. Also included are concrete quantity tables for all types, as well as descriptions and specifications for underfloor electrifications system. (12 pp.)

AIA FILE NO. 4-E-6

MFR: CECO STEEL PRODUCTS CORP.

Circle 320

DOORS/WINDOWS

DOOR MAINTENANCE MANUAL

Maintenance and parts manual for rolling steel doors is offered. Manual is intended to expedite ordering of replacement parts and aid in identification of parts. Sections are included on typical door construction features, inspection periods, door adjustments, maintenance procedures, door components and mechanical and power operators. (16 pp.)

AIA FILE NO. 16-D

MFR: THE R. C. MAHON CO.

Circle 321

DRAPERY HARDWARE

Annual catalog now available, covering specifications and mounting methods of cut-to-measure traverse equipment for institutions, banks, office buildings, theaters and homes. Included is aluminum auditorium track for windows and other large openings, and units for high or wide

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Circle 125 for further information

LITERATURE

windows and partitioning and lightweight draperies. Suggestions for measuring for corner windows, bay windows, curved and odd shaped windows also presented. Protractor, designed for measuring bay and corner window angles, offered with catalog. (12 pp.)

AIA FILE NO. 27-C

MFR: KIRSCH CO.

Circle 322

REMOTE WINDOW CONTROLS

Current bulletin describes line of remote window controls for mechanical operation, from a convenient lo-

cation, of inaccessible windows. Guide is presented to five basic systems; photographs and drawings illustrate system components and typical installations. Charts and tabular information detail such points as number of windows which can be operated, maximum window openings and handle loads. Accessory equipment also described. (8 pp.)

AIA FILE NO. 27-C

MFR: TELEFLEX, INC.

Circle 323

STEEL DOORS

Current folder lists advantages and

applications of line of steel rolling doors for pier applications. Units are custom manufactured; photographs show various installations. Specifications are presented, along with advantages, which include low maintenance cost, security, ease of operation and total utilization of space. (4 pp.)

AIA FILE NO. 16-D

MFR: WALTER BALFOUR & CO., INC.

Circle 324

REVISED WINDOW CATALOG

Line of custom made metal windows, for all architectural treatments, is described in revised catalog. Among types covered are reversible, sliding, projected, awning, single and double hung, casement, security and hopper combinations, all available in aluminum, bronze and stainless steel. Also included are section drawings, installation photographs, features and specifications. (20 pp.)

AIA FILE NO. 16-E

MFR: ALBRO METAL PRODUCTS CORP.

Circle 325

STEEL DOORS/FRAMES

Line of steel hollow metal doors and rail and stile doors is featured in recent catalog. Information and drawings presented on frame sections, dimensions, types, sizes and specifications. Door units include flush panel and louvered folding closet doors. Steel frame for use with wood doors also included. (24 pp.)

AIA FILE NO. 16-A

MFR: AMWELD BUILDING PRODUCTS DIV., THE AMERICAN WELDING & MFG. CO.

Circle 326

FOLDING DOORS

Current catalog gives descriptive information, detail drawings, construction and specifications of four folding door types. *Customfold* units, built to architect's specifications, are for commercial applications: *Stackdoor*, for residences; *Accordofold Royale*, folding door for residential use; and *Wovynfold*, woven door of mahogany and vinyl. (16 pp.)

AIA FILE NO. 16-M

MFR: AMERICAN ACCORDION-FOLD DOORS, INC.

Circle 327

INSULATION/FIREPROOFING

RESIDENTIAL INSULATION

Reference manual on residential insulations offered to architects and others interested in insulation for comfort and economy in home installations. Among topics included: insulation, ventilation, condensation control and sun heat control; design

standards and specifications relating to amount of insulation, structural ventilation, techniques of condensation prevention and of sun control; design principles; application standards; tabulated data; and product information. Also contained are notes on thermal design, insulation of roofs, attics, sidewalls, floors, crawl spaces and basements. (24 pp.)

AIA FILE NO. 37-C

MFR: OWENS-CORNING FIBERGLAS CORP.

Circle 328

PIPING INSULATION

Recent issue of *Pipe Insulation News*, vol. 3, no. 2, describes use of *Gilsulate*, piping insulation, in New York's Seward Park Project, a cooperative housing project. Material is described and installation methods are explained. (4 pp.)

AIA FILE NO. 37-B

MFR: GILSULATE DIV., AMERICAN GILSONITE CO.

Circle 329

FIRE RATINGS BOOKLET

Vermiculite Fire-Resistance Ratings, in revised edition, offered. Ratings are for vermiculite plaster, concrete, acoustical plastic and direct-to-steel fireproofing. Sectionalized for reference, booklet summarizes technical data for 59 official fire ratings, eight on direct-to-steel floor systems. Contains over 50 basic detail drawings.

AIA FILE NO. 21-C-1

ASSN: VERMICULITE INSTITUTE

Circle 330

FIRE EXTINGUISHING UNITS

Catalog for 1960 contains specifications and engineering data on varied lines of fire fighting equipment. Included are automatic sprinkler systems, high and low pressure carbon dioxide systems, smoke detection systems, dry chemical systems, foam systems, fire hose and extinguisher cabinets, portable extinguishers and accessory equipment. Section on cabinets is enlarged to include styles, finishes, hardware and dimensions. (28 pp.)

AIA FILE NO. 29-E

MFR: THE FYR-FYTER CO.

Circle 331

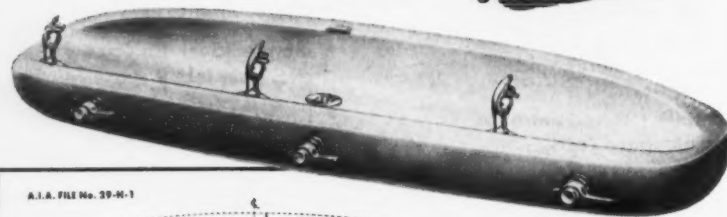
FIREPROOF PLASTER/CONCRETE

Eighth edition of *Lightweight Fireproofing With Perlite* offered as basic reference for architects, designers and specification writers. Booklet describes 41 approved fire rated construction systems with perlite plaster and concrete. Systems consist of fireproofing details up to 5 hours for steel columns, walls and partitions,

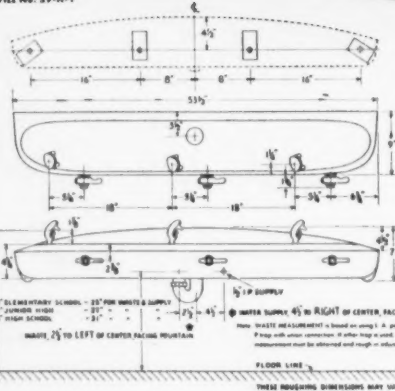
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HAWS



A.I.A. FILE NO. 39-M-1



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In fiberglass, in color... and a design as fresh as the latest architectural trends! HAWS Model 10Y brings welcome beauty and color appeal to school and institutional environments. It's vacuum molded in tough, lightweight, acid resisting fiberglass—with smooth lines and 100% concealed trim. HAWS vandal proof, shielded bubblers are anti-squirt, with HAWS Flow Controls. Choose from five decorator colors and white at no extra cost! Write for the complete specs on Model 10Y (and also Model 10X, the same fine design in enameled iron).

See HAWS Catalog in Sweet's Architectural File for data on the entire Haws line.

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Circle 126 for further information

floors and ceilings. Details also given for up to 4 hour rated systems for direct-to-steel fireproofing applications with acoustical plaster. Notable installations are pictured. (8 pp.)

AIA FILE NO. 21-C-1

ASSN: PERLITE INSTITUTE, INC.

Circle 332

HVAC

HEATING CALCULATOR

Wiredheat Calculator is offered; designed to simplify accurate calculation of heating requirements for average homes and offices. Said to assure accurate calculation of heat loss and power consumption without added opportunity for error and extra working time necessary with charts and heat loss tables. Instrument is 8" long; resembles slide rule. Request calculator on letterhead directly from Wesix Electric Heater Co., 390 First St., San Francisco, Calif.

AIA FILE NO. 30

MFR: WESIX ELECTRIC HEATER CO.

Write mfr directly

RADIANT HEATING BROCHURE

Recent brochure features *Infratube* line of zone controlled heaters for use as auxiliary heating, both indoors and outdoors, in difficult to reach areas. Unit features are described and charts aid in determination of heaters required, capacities, coverage, mechanical specifications and other physical features. Typical applications such as factories, annex buildings, grandstands and warehouses are listed (4 pp.)

AIA FILE NO. 30-C-4

MFR: APEXPRO PRODUCTS CO., DIV. APEX SHEET-METAL WORKS, INC.

Circle 333

AIR-CONDITIONING BROCHURE

Publication on air-conditioning units offered to architects, engineers and others concerned with selection and specification of flexible equipment for multi-storied applications. Included are reproductions of typical hot and cold duct air-conditioning units, dimensional drawings, dimension tables and nominal rating tables. Product features are emphasized. (4 pp.)

AIA FILE NO. 30-F-1

MFR: DRAYER-HANSON DIV., NATIONAL-U. S. RADIATOR CORP.

Circle 334

ADSORPTION STANDARDS

Complimentary copies of Standards prepared by NEMA's Adsorption Section offered to engineers and others interested in field. Standards cover definitions, terminology and performance measuring instruments pertaining to solid adsorbent type air and gas dehumidifying and dehydrating equipment. Reported to be

invaluable first reference for engineers designing, specifying, purchasing and using solid adsorbent type dehumidification and dehydration equipment. (18 pp.)

AIA FILE NO. 30-D

MFR: GAS DRYING, INC.

Circle 335

WALLS/PANELS

PLYWOOD CATALOG

Reference catalog for 1960 released for architects and engineers, with two additional, 4 page booklets dealing with technical properties of western softwood plywood sheathing. Catalog contains basic information on fir plywood standard grades, types, sizes, uses, working and finishing. Information on surfaces and specifications included. (16 pp.)

AIA FILE NO. 19-F

ASSN: DOUGLAS FIR PLYWOOD ASSN.

Circle 336

ALUMINUM WALL CATALOG

Specifications and typical installation details for aluminum window wall system contained in current catalog. System said to be completely contained as floor-to-ceiling unit, resulting in minimum of installation time on site. Framing system permits panel thicknesses of 2 1/2". Performance tests and graphs presenting wind load information are included. (8 pp.)

AIA FILE NO. 17-A

MFR: ARCADIA METAL PRODUCTS

Circle 337

WALLBOARD BROCHURE

Micro-Flexboard, base material for outside panels or interior walls, is described in recent brochure. Material is described as precision asbestos-cement base sheet which is economical, accurate and dependable. Brochure stresses material can be finished with porcelain on metal, wood veneer, ceramic tile, textured metal, plastics or paint finishes. Physical characteristics, sheet surfaces, recommended finishes and processes for building interiors and exteriors are contained. (6 pp.)

AIA FILE NO. 23-L

MFR: JOHNS-MANVILLE CORP.

Circle 338

CURTAIN WALL UNITS

Entitled, *Architectural Metal*, current booklet describes *Series 200*, units for curtain wall systems. Versatility of design, function and dimension, weathertightness and reliability are stressed by mfr. Three types of mullions are presented for installation in single and multi-story structures, in varying shapes and sizes. Information also included on windows, solar shading devices and other features. Specifications and

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with

NU-RAIL® FITTINGS

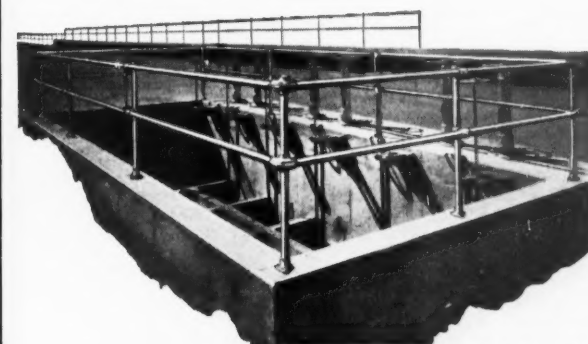


Eliminate threading and welding when installing railings and you can save real dollars. You'll save those dollars when you use specially-designed NU-RAIL Slip-On Fittings—the quick, easy and economical method of pipe fitting. On long runs, mill lengths of pipe can be used without cutting.

On a mile of railing built at this Texas sewage treatment plant the unique offset and slip-on features of NU-RAIL Fittings resulted in significant savings—up to 80% of labor cost.

For more money-saving ideas in railing construction write for Bulletin 31AE.

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1960 RLM specifications book for
**industrial
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This new edition announcement again emphasizes the fact that RLM Specifications are not fixed standards! They are Quality Standards that grow with the Industry and the Science of Illumination. For your new, complimentary copy of the 1960 RLM Specifications Book, write RLM STANDARDS INSTITUTE, 326 W. Madison St., Dept. 8973, Chicago 6, Illinois.



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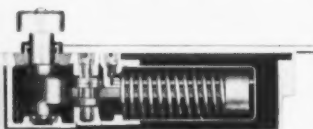
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LITERATURE

structural selection data are provided. (16 pp.)

AIA FILE NO. 17-A

MFR: NORTH AMERICAN AVIATION, INC.
Circle 339

WALL/FLOOR PANELS

Booklet now available containing sketches of adaptations of range of hardboard products in both residential and commercial installations. Twenty sketches with application details are included. Both interior and exterior uses are illustrated. (24 pp.)

AIA FILE NO. 23-L

MFR: MASONITE CORP.

Circle 340

HARDBOARD PANELING

Line of *Marlite* plastic surfaced hardboard paneling for walls and ceilings, described in 1960 catalog. Illustrations of commercial and institutional interiors show materials with *Trendwood* finishes for plain and grooved 4' and 16" wide panels, 1/4" thick for installation over solid backing or furring strips. Matching moldings and installation accessories are also pictured. (8 pp.)

AIA FILE NO. 23-L

MFR: MARSH WALL PRODUCTS, INC.

Circle 341

MISCELLANY

SHORING EQUIPMENT

Recent file folder describes line of concrete shoring equipment for such heavy uses as road, building and bridge construction. Horizontal, vertical and tripod shoring members are illustrated and features discussed. Drawings are included for units to accommodate various spans. (6 pp.)

AIA FILE NO. 4-D-1

MFR: REX-SPANALL, INC., SUBS. CHAIN BELT CO.

Circle 342

PLASTIC LETTERS/SIGNS

Recent brochure describes line of *Plexiglas* letters and sign materials and illustrates units in recent installations. Advantages such as durability, resistance to weather and breakage, light weight and fade resistant colors are covered. Nine type fonts are shown and available sizes indicated. Custom designed and special symbols also available. (6 pp.)

AIA FILE NO. 24-C

MFR: AMPLEX MFG. CO.

Circle 343

MOVABLE RAMPS

Engineering bulletin offered describing *Mobil-Dock* system of movable ramps to facilitate shipping and receiving materials in plants and warehouses. Features and advantages of units are stressed and listing is made

of typical problems which system may facilitate. (2 pp.)

AIA FILE NO. 35-i-141

MFR: MAGLINE, INC.

Circle 344

VERTICAL CONVEYOR

Recent brochure describes *Record-lift*, automatic vertical conveyor system, for distribution of office correspondence, supplies, etc. from floor to floor. Method of operation is described and data is provided on such aspects as dispatch controls, operator safety and recirculation. (8 pp.)

AIA FILE NO. 35-H-2

MFR: STANDARD CONVEYOR CO.

Circle 345

WATERPROOF SEALANT

Recent brochure presents advantages of *Thorospan*, waterproof sealant for glazing and caulking of both interior and exterior joints. Brochure indicates applicability of material, as permanent bond, to 23 types of building materials, including wood, glass, aluminum, masonry and steel. (4 pp.)

AIA FILE NO. 7-D

MFR: STANDARD DRY WALL PRODUCTS, INC.

Circle 346

CONCRETE CUTTING MANUAL

How to Make Openings in Flexicore Decks, is manual for architects and engineers, containing instructions for cutting precast concrete decks. Procedures are outlined for cutting openings of 1" or less with a power or star drill, and 1" to 6" holes with core drill or hammer and chisel. Line drawings, photographs and step by step instructions are provided (8 pp.)

AIA FILE NO. 4-K

MFR: THE FLEXICORE CO., INC.

Circle 347

MAIL HANDLING EQUIPMENT

Current catalog describes and illustrates various types of mail handling equipment. Information includes specifications, dimensions and gauge for calculating total space required. Installation diagrams also included. (12 pp.)

AIA FILE NO. 35-H-1

MFR: CUTLER MAIL CHUTE CO.

Circle 348

TILE COLOR CHART

Chart for 1960 now available, presenting colors, patterns and other features of vinyl asbestos tile lines of 9 mfrs. Tiles are 9" x 9"; chart includes colors and patterns in marble, plain colors, cork and metallic patterns. (4 pp.)

AIA FILE NO. 23-G

ASSN: ASPHALT AND VINYL ASBESTOS TILE INSTITUTE

Circle 349

DOCUMENTS

The documents listed below are available through the associations and agencies cited. All orders should be directed accordingly.

Building Research Advisory Board,
National Academy of Sciences, National Research Council, 2101 Constitution Ave., Washington 25, D. C.

BRAB List of Publications, July 1959. 11 pp. No charge.

First complete, comprehensive list of current BRAB publications. Includes brief description of each item, plus discount details.

Cathodic Protection as Applied to Underground Metal Structures, Report No. 32. \$1.50.

Brief history of corrosion processes and an explanation of general design procedures for the application of cathodic protection. Bibliography of technical data and reports and results of nationwide survey included.

Air-Conditioning Design, Report No. 35. \$1.50.

Presents data intended to reduce the area of empirical assumptions

in calculating air-conditioning loads. Recommendations made on indoor temperature conditions, hospital design conditions, safety factors, and ventilation rates. Includes results of nationwide survey of designers, manufacturers, and users of air-conditioning.

American Standards Assn., 70 East 45th St., New York 17, N. Y.

National Electrical Code, American Standard, C1 1959. \$1.00.

Frequently revised and reprinted since 1897, the code is sponsored by the National Fire Protection Assn. This 1959 revision includes many changes in substance, and also a new numbering system. Because of new system, an appendix is included providing cross references with the 1956 edition. Sections which have been revised since then are indicated in bold face in this appendix.

American Standard Specification for Rigid Steel Conduit, Zinc-Coated, C80.1-1959. \$.80.

Covers conduit protected on the exterior surface with a metallic zinc coating and on the interior with enamel, zinc, or other equivalent corrosion-resistant coating. This conduit is furnished in nominal 10-foot

lengths, threaded on each end with one coupling attached.

American Standard Specification for Rigid Steel Conduit, Enameled, C80.2-1959. \$.80.

Covers similar conduit as above, but with enameled exterior surface rather than zinc-coated. This conduit is also furnished in nominal 10-foot lengths, threaded on each end with one coupling attached.

American Standard Specification for Electrical Metallic Tubing, Zinc-Coated, C80.3-1959. \$.80.

Covers electrical tubing of steel, supplied in nominal 10-foot lengths with plain ends.

National Electrical Manufacturers Assn., 155 E. 44th St., New York 17, N. Y.

NEMA Standard on Electric House Heating Equipment, HE 2-1959. \$.30.

Includes definitions, ratings, markings, methods of test, performance, safety and durability of electric space heating equipment of the types principally used in residences.

NEMA Standard on Piping Systems Units, SM 10-1959. \$.25.

Outlines basic principles and specific requirements for design, fabrication and installation of oil piping, steam gland piping and integral steam piping for steam turbine generator units rated 15,000 kw through 33,000 kw.

NEMA Standard for Mechanical-drive Steam Turbines, SM 20-1958 (Revised November, 1959). \$2.00.

Details characteristics of mechanical-drive steam turbines.

Expanded Polystyrene Manufacturers Task Force, Room 736, 342 Madison Ave., New York 17, N. Y.

Specification of Polystyrene, Expanded, for Thermal Insulation, HH-1-00575 (GSA-FSS) May 29, 1959. No charge.

Specifications are result of extended test program at the research center of one of the manufacturers with check testing at the laboratories of several of the other manufacturers.

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PYREX® Lifetime Drainline is guaranteed against corrosion and leakage for the life of the building in which it is installed.

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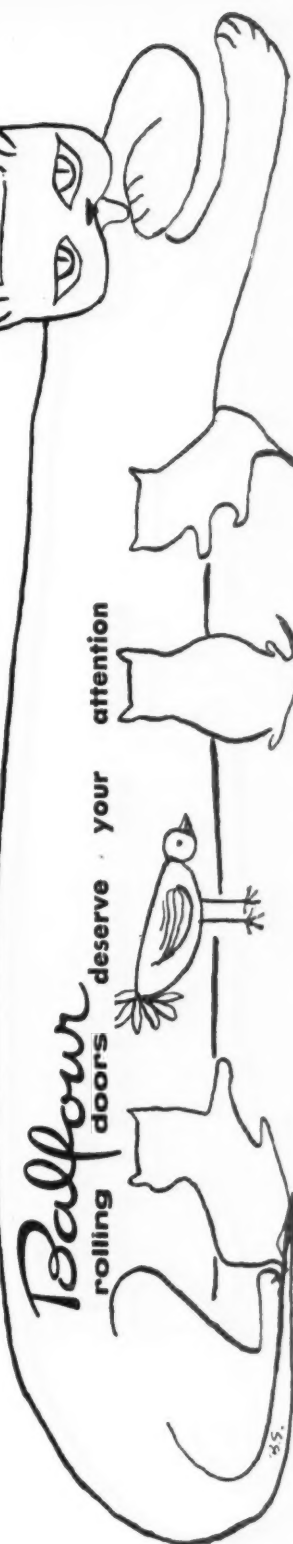
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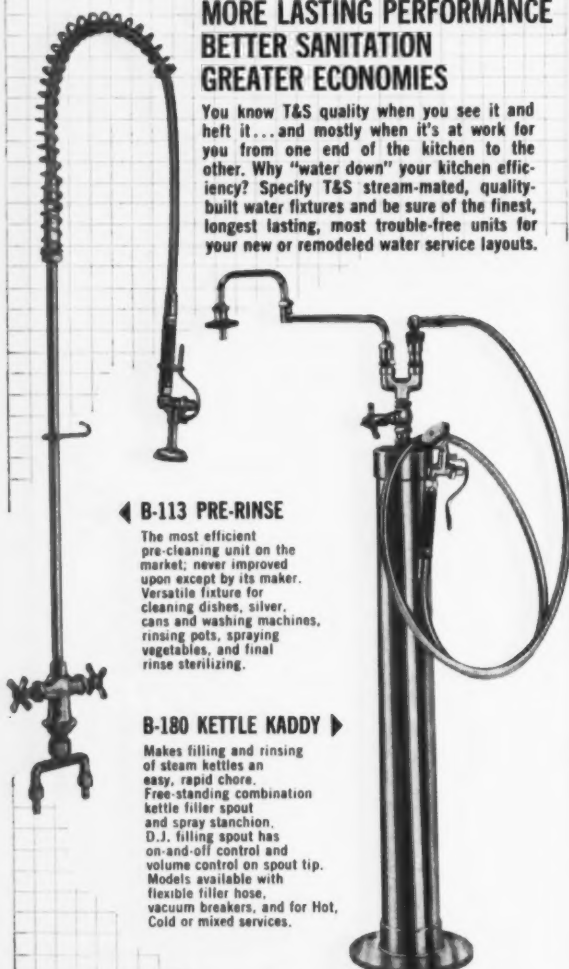


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BOOKS

Electrical Efficiency in Industrial Plants by Edwin S. Lincoln. New York: F. W. Dodge, 1960. 235 pp., illus. \$9.50.

Specifically deals with the problems of reducing electric power and lighting costs in industrial plants and larger commercial buildings. Describes how to make surveys of load, power factor, voltage, lighting, wiring and electric protection. All necessary instruments are discussed in detail, with emphasis on their selection, continued use, and maintenance. Of particular interest to electrical engineers and those concerned with electrical system design.

Theory of Linear Viscoelasticity by D. R. Bland. New York: Pergamon Press, Inc., 1960. 128 pp., illus. \$7.50.

Formulates the stress-strain relations of, and solves various stress analysis problems for linear viscoelastic materials. Contains introduction to concepts of the subject making use of one-dimensional models, a derivation of the various equivalent forms of the stress-strain equations and of the associated potential and dissipation functions, and treats problems in stress analysis for sinusoidal oscillations, for quasi-static, and for dynamic conditions respectively. Model fitting is also discussed.

Office Building and Office Layout Planning by Kenneth H. Rippen. New York: McGraw-Hill Book Co., Inc., 1959. 200 pp., illus. \$10.00.

A practical guide to all aspects of planning, setting up, and administering office space for efficient and economical operation. Included is information on determining the amount of space required for various kinds of office work; the maximum use of space; lighting, air-conditioning, under floor ducts, partitions, and color; and other factors involved in effective offices and office buildings.

Practical Prestressed Concrete by H. Kent Preston. New York: McGraw-Hill Book Co., Inc., 1960. 335 pp., illus. \$11.50.

Provides simplified information on the design of safe, economical structures of prestressed concrete. Basic

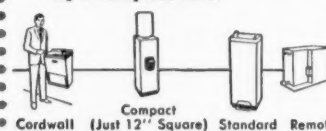


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principles, design procedures, and numerical examples are presented in terms of simple arithmetic and standard stress and moment formulas familiar to structural engineers. All design examples are based on tentative recommendations for prestressed concrete prepared by an ACI-ASCE committee of experts. Tables and appendices give information on properties of strands, wires, and bars, and specifications and recommendations for prestressed concrete design.

The Second Treasury of Contemporary Houses, selected by the editors of "Architectural Record." New York: F. W. Dodge Corp., 1959. 232 pp., illus. \$7.75.

Covers 44 houses, considered most significant of those designed in past few years. Amply illustrated with photographs, plans and drawings.

Hyperstatic Structures; An Introduction to the Theory of Statically Indeterminate Structures, Volume I by J. A. L. Matheson. New York: Academic Press, Inc., 1959. 474 pp., illus. \$15.50.

Purpose of this textbook is to show that all the different techniques and theorems, both classical and modern, which purport to explain various aspects of the subject are in fact related to one another and fit into a pattern. Concentrates on theory and simple illustrative worked examples.

Non-Homogeneity in Elasticity and Plasticity, Proceedings of the I.U.T.A.M. Symposium, 1958, edited by Prof. W. Olszak. New York: Pergamon Press, Inc., 1959. 528 pp. \$15.00.

Contains papers presented at Warsaw Symposium organized by the International Union of Theoretical and Applied Mechanics in cooperation with the Polish Academy of Sciences. The 55 theoretical and experimental papers report the latest research in Europe, the U.S.S.R. and the U.S.A.

Corrosion of Chemical Apparatus; Corrosion Cracking and Methods of Protection Against It translated from Russian, 1959. New York: Consultants Bureau, Inc. 250 pp., illus. \$7.50.

Recent data on the theory of inter-crystalline and stress corrosion of metals and alloys frequently used in chemical machine construction.

(Continued on page 41)

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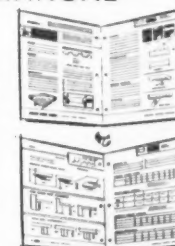
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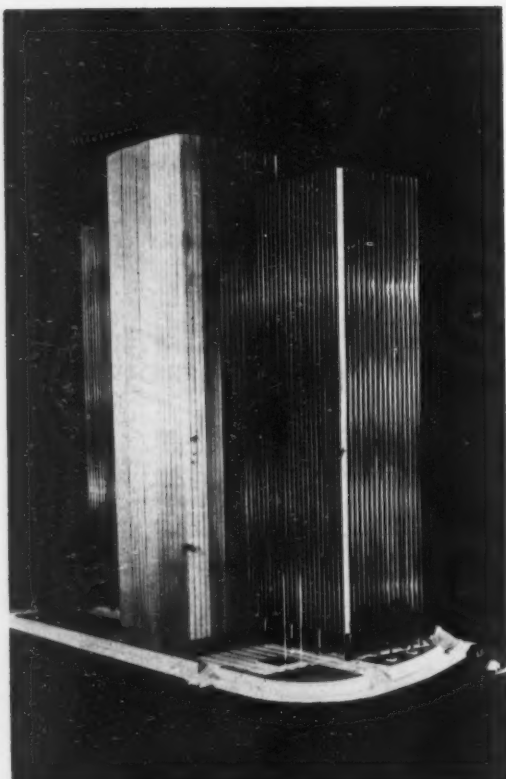


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EQUITABLE LIFE ASSURANCE SOCIETY
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General program

Four Gateway Center is the latest building in Pittsburgh's Golden Triangle redevelopment program. It is designed to meet the demands of good modern office space for multiple tenancy with year round air-conditioning and provisions for full use of modern electronic devices with the capabilities of complete flexibility in office arrangements. The building is part of the over-all plan based on the concept of office buildings in a landscaped park area with parking underground.

General description

An eight-sided core will be centered at the rear of the 62 foot x 266 foot rectangular building, rising two stories above the 22-story height of the building. The core will house all the elevators, air-conditioning equipment and other heavy service facilities, providing the office tower with practically

unobstructed floor areas that total over 400,000 square feet of rentable space. The core will be completely sheathed with stainless steel panels and, to date, is the largest of its kind in the country.

The street floor, a glass-enclosed plaza, is designed with white and blue marble with a blue-gray terrazzo floor. It will be divided into store areas to be rented.

The building's mullions above the plaza level provide sharply defined vertical lines; the core adds to this vertical effect. For contrast, gray-colored stainless steel strips run horizontally between the glass and spandrelite on the building, and vertically between the panels on the core. Four Gateway will be one of the first structures to use colored stainless steel.

Elevation and plan elements

The building, including the two-story service penthouse in the core, will be 300 feet high and have a curtain wall area of 180,000 square feet. The No. 4 finish stainless steel mullions will rise 250 feet—from the top of the first floor to the roof of the penthouse. Spaced 4 foot o.c., they frame glass windows 6 feet 7 inches high, and green-tinted spandrelite panels 4 feet 7 inches high. The mullions are formed to provide tracks for automatic window cleaning platforms to be used for washing the fixed windows that are permanently sealed against outside noise and dirt.

With the exception of electric closets, a stairwell and a single row of columns, each floor above the plaza area will be devoted exclusively to offices. The 62 foot by 266 foot floor areas will be sub-divided using movable partitions, providing completely flexible office planning.

Tenants will have the option of providing carpeting or selecting vinyl asbestos floor tile, available in several colors.

Structural information

Piles and caps are used to support the building columns except where the founda-

tion abuts a new three-level underground Gateway Plaza garage. Here, 14 horizontal assemblies of structural steel beams, laid on bases in the foundation, support the columns.

The curtain wall glass, insulated spandrel panels and field-erected 12-foot mullions are supported by 3,800 galvanized steel sub-frames that are secured to the structural steel with galvanized bolts.

Inside, framing beams support cellular-steel sub-floor decking laid in sections 2 feet wide and in varying lengths. The underside is sprayed for fireproofing and the top filled with 2½ inches of poured concrete. The cellular decking provides raceways for flexible and easily reached wiring, lighting, telephone and special communications outlets.

Suspended acoustical tile ceilings have recessed, rectangular fluorescent fixtures located 8 feet 8 inches from the floor for uniform 50-foot candlelighting.

The service core will be sheathed in 43,000 pounds of 16 gauge Type 302 No. 4 finish stainless steel. Individual panels approximately 12 feet high and 1½ feet wide are backed up with 1½-inch rigid fiberglass insulation, cemented to the cinder block core. Self-tapping stainless screws secure the panels to back-up steel welded to the structural beams. The core will contain 12-high-speed, electronically controlled passenger elevators, the freight elevator, lavatories, a second stairwell, and the air-conditioning ducts. The core penthouse will house the air-conditioning equipment.

HVAC

The building is equipped with year-round, peripheral zoned air-conditioning with balanced humidity and individual temperature controls. Weather-master units are located in the window areas and a filtering process removes dust and pollen from the air.

Volume and cost

Gross volume	6,200,000 cu. ft.
Total cost	\$16,000,000

BOOKS

(Continued from page 39)

Industrial Building Details, Second Edition by Duane F. Roycraft, RA. New York: F. W. Dodge Corp., 1959. 356 pp. \$12.75.

Collection of some 1,500 scaled detail drawings of the many parts of a modern industrial building. Drawings very legible (book page is 8½ x 11) and clearly labeled.

Natural Resources by Martin R. Huberty, and Warren L. Flock, editors. New York: McGraw-Hill Book Co., Inc., 1959. 556 pp., illus. \$11.00. Intended for the general public, book is based on a series of extension lectures by distinguished scientists emphasizing the technological aspects of the development and use of natural resources broadly defined. The bibliography covers 70-odd titles pertinent to further study in any of the areas of natural resources discussed.

Phenolic Resins by David F. Gould. New York: Reinhold Publishing Corp., 1959. 213 pp., illus. \$5.75. The latest in a series of semi-technical guide books to specialized applications of plastics. This one covers the tar-acid (or phenolic resins). Discusses the properties, the chemistry, fabrication, and applications.

Analysis of Pipe Structures for Flexibility by John Gascoyne. New York: John Wiley & Sons, Inc., 1959. 181 pp., illus. \$7.50.

Contains codes and standards, methods of stress calculation, preliminary data and basic assumptions, an elastic-center method of stress calculation, translation of results, pipe supports, and worked examples. Designed to help the piping designer determine for himself the flexibility of his structures to make sure they satisfy existing safety codes.

Metallurgical Society Conferences, Vol. I, Flat Rolled Products: Rolling and Treatment, proceedings of technical conference held in Chicago, January 21, 1959. New York: Interscience Publishers, Inc., 1959. 148 pp. \$3.75.

First volume in a new series presenting proceedings of conferences of the Metallurgical Society of AIME.

(Continued on page 42)

March 1960

DIGEST:15

COLOR AND FINISH CONTROL WITH FERROUS METALS

From a talk by J. P. Butterfield, Manager, Stainless Steel Sales, Armeto Steel Corp., delivered at 1959 Building Research Institute Fall Conferences, Washington, D. C.

In discussing color and finish control with ferrous metals, we also are discussing corrosion control inasmuch as practically all colors or finishes enhance the corrosion resistance metal when applied.

Speaking of corrosion of sheet metals, one of the first questions invariably posed by architects is: "Does corrosion occur at the edges and cause failure by progressive attack proceeding into the sheet metal from the edges?" The answer is "No." In more than 50 years of corrosion research on sheet metals in our company we never have encountered failure by corrosion *horizontally* from the edges. When corrosion occurs, it always is in the vertical direction from the flat surface of the sheet.

We do not mean to suggest that edge corrosion is so negligible that it never could cause visual dissatisfaction but, as far as catastrophic failure of sheet metal panels is concerned, edge corrosion can be forgotten. Incidentally, this is true for any sheet metal, whether ferrous or non-ferrous.

There presently are four basic methods for control of the color and finish of ferrous metals. These four methods are: (1) metallic coatings, either electroplated or hot-dipped; (2) organic coatings, such as paint or plastic films; (3) inorganic coatings, such as porcelain enamel fused to a base metal; and (4) stainless steels.

Metallic coatings

Electroplated or hot-dipped metallic coatings have limited significance in metal curtain wall design because of the importance of the appearance factor. However, from the standpoint of protection against corrosion, either zinc coated or aluminum coated steel offers the most protection for the least cost. The life of these two metallic coatings in the atmosphere far exceeds the life of paints, at a fraction of the cost of painting.

Organic coatings

Organic coatings such as paint or plastic films offer a virtually unlimited color range and continuing research has led to the development of plastic films that are quite resistant to atmospheric corrosion. The durability of these films is dependent on the composition of the plastic, the thoroughness of coverage, and the ability of the film to act as a barrier to all the vagaries of the elements.

The newer acrylic resin paints offer the prospect of eight years, or possibly even longer, service life on ferrous metals at a current cost somewhat less than twice the cost of standard paints.

A major research target of the vinyl plastic manufacturers is to develop polyvinyl chloride films that will withstand ultraviolet light, ozone and other atmospheric corrosives, and still retain their color, flexibility, and protection of the base metal. This development is in its infancy in the United States but it is understood that Belgian and Swiss architects have been using such films on storefronts and wall panels for the past several years with considerable success.

Newer and more resistant films such as polyvinyl

fluoride may offer more latitude in architectural applications than polyvinyl chloride, if manufacturers tests are duplicated in actual service.

Porcelain enameling

Porcelain enameling perhaps is the oldest metal coloring method known to man. It dates back to the very early Chinese civilizations and to artifacts found in the Pyramids. The colors of these ancient porcelain coatings have endured through centuries and they still protect the metal to which they were applied. No known method of color and finish control on ferrous metals has a better proof of reliability than offered by these ancient examples of the art of porcelain enameling.

Just what is porcelain enamel? By definition it is a substantially vitreous or glassy inorganic coating bonded to metal by fusion at a temperature above 800° F. For architectural uses, the fusion temperature is in the range of 1,200° to 1,500° F.

The range of colors available in porcelain enamel is limited only by the ability of the architect to discuss and convey his ideas to the enameler. There must, however, be mutual agreement on the color tolerance. All of us know that changes in humidity, temperature, cloud cover, and angle of viewing can result in slight changes in color appearance. Since there are few, if any, color metering devices as critical as the human eye in the evaluation of an expanse of color, the architect must recognize the problem that is posed in securing true repetition, panel after panel, of delicate pastel colors.

For example, shades of pink may be both visual and color-metered equals at the same angle of viewing. When installed on a building, a cant or misalignment of a panel changes the angle of viewing for that panel and may make it appear almost gray instead of pink. Here the control of color lies in proper installation, since all things were equal before the panel was placed.

To assist in control of color, members of the Porcelain Enamel Institute have established a series of 47 standard color chips. These colors are formulated and coded so that all members of the institute are able to match them. We recommend the use of this color guide system, which was developed jointly by the Porcelain Enamel Institute and the National Bureau of Standards to assist in the control of the color variable in porcelain enamel finishes.

In addition to color control, the institute maintains a technical committee for periodic review and updating of its Architectural Porcelain Enamel Specifications. Currently, studies are underway on flatness, weathering resistance, color retention, gloss, and image formation. As these basic studies are completed, the findings will be incorporated in the specifications covering porcelain enamel surfaces.

The most recent advance in the control of architectural porcelain enamel occurred only last month [October 1959], when the Porcelain Enamel Institute announced its Quality Verification Program. The manufacturers of architectural porcelain enamel

(Continued on page 42)

DIGEST:15

have agreed to rigid specification control and to unannounced inspection of their products both in the plant and on the job to insure satisfaction for the architect and his client.

Stainless steels

The remaining method for control of color and finish with ferrous metals is the use of stainless steel. There are many different alloys in the metallurgical family of stainless steels but only four have any architectural significance. This simplifies matters.

The American Iron and Steel Institute assigns identification numbers, known as Type Numbers, only to those stainless steels that are standardized as to alloy composition and are both in general use and in regular production by most of the stainless mills. The AISI Type Numbers to consider for architectural applications are as follows: Type 301, Type 302, Type 316, and Type 430. Use of these AISI Type Numbers controls the chemical composition just as effectively as any specification you may write.

Type 302 is by far the most commonly used architectural stainless steel. It popularly is known as 18-8, which refers to the 18 per cent chromium and 8 per cent of nickel that makes up its nominal composition. Probably as high as 90 per cent of all architectural stainless applications of the past 30 years are in Type 302 or "18-8." Type 302 is fabricated into simple or intricate shapes by hundreds of metal fabricators. In earlier years, lack of experience with stainless fabrication limited its availability but now many fabricators specialize in stainless steel and prefer it. It is the strongest and sturdiest of the architectural metals and nature in the form of chromium makes it carefree and beautiful.

Type 301 contains only a little less chromium and nickel—17 per cent chromium and 7 per cent nickel. It is a good choice where widths under 24 inches are required and a cold rolled finish is specified. If these two conditions are met, there is an appreciable saving averaging about 7 per cent in material cost compared with Type 302. A good illustration of intelligent use of Type 301 would be its selection for outdoor architectural sections that are fabricated by roll forming from cold rolled strip coils. The atmospheric corrosion resistance of Type 301 or "17-7" is fully equivalent to that of Type 302.

Type 316 is a molybdenum-containing version of Type 302. A molybdenum addition of about 2.50 per cent considerably improves corrosion resistance, particularly in salt air. The architectural use of Type 316 is confined almost exclusively to locations such as Atlantic City and Miami or similar exceptionally corrosive salt air environments. Type 316 is not necessary in other locations.

Type 430 contains about 17 per cent chromium—the alloy that makes stainless steel stainless—and no added nickel. Type 430 is the economical choice for many interior architectural applications and it also is suitable for metal curtain wall systems providing two conditions are met. First, it never should be used in salt air environments such as Atlantic City or Miami. Secondly, it should not be used if weldments are exposed to atmospheric corrosion, because the metal immediately adjacent to welds may rust. Type 430 in sheets, or strip, is approximately 20 per cent lower in price than Type 302, thereby providing a worthwhile saving in many valid architectural uses, including metal curtain walls.

The natural color of stainless steel as it comes off the rolling mills is silver gray. There really are only two basic finishes of the metal that architects should know. The first is a dull cold rolled finish (2D) that has found much favor in exterior metal panel con-

struction. Examples of the use of 2D finish are the three Gateway Center Buildings in Pittsburgh and the new Socony Mobil Building in New York.

We believe that the dull cold rolled finish used on all these buildings is ideal for metal curtain wall panels because there are no reflected images or reflected sunlight, the color is a uniform silver gray, the surface is the best for fabrication of any design patterns desired, and the cost is the lowest possible for stainless steel because there is no extra charge for a cold rolled finish.

The other basic finish of significance for metal curtain wall systems of stainless steel is No. 4 Polish. This is the long-established standard polished finish that architects specify for building entrances, marquees, elevator doors, column covers, and many other uses calling for "dress-up" effects. However, we do not recommend the use of No. 4 Polish for metal curtain wall panels because of objectionable light-reflecting characteristics. On the other hand, No. 4 Polish is eminently suitable for trim, mullions, and any other small areas calling for contrast.

A recent innovation is the production of stainless steel sheets in color. Two new buildings have employed color-coated stainless sheets. Just completed is the American Society for Metals Building near Cleveland, on which a soft gold coating is used on one side of the stainless steel sunshade on this ultra-modern structure. On Gateway Building No. 4, now under construction in Pittsburgh, a charcoal gray color coat on stainless steel panels will offset and accent the No. 4 Polish also used.

These colors are designed for outdoor exposure. It is reported by the producer that the thermo-setting acrylic coating fabricates well and can be drawn, bent, or roll-formed into any shape. Eleven colors currently are available and the coating system permits easy field repair should damage occur during erection of panels.

Another coloring method for stainless in limited usage involves a simple chemical process that applies a black oxide finish which contrasts well either with the natural silver gray of a cold rolled finish or with a No. 4 Polish.

Porcelain enamel can be applied to stainless steel with satisfactory adherence and stunning color effects can be achieved on textured stainless by burnishing off the porcelain enamel from the high points of the textured pattern and leaving the porcelain enamel in the valleys.

In concluding this brief discussion, we ask for your indulgence if we depart from our main topic to suggest that there is another area of control by architects and contractors that often does not seem to receive the attention it merits. We refer to the control of quality by specification and by inspection. A loosely-worded specification, rather than achieving the desired result, too frequently is an open invitation to downgrade.

It is our sincere belief that reputation for quality and past good performance should carry as much weight as the low price in evaluation of bids. Architectural errors in metal, as well as in other materials, may result from too much of a squeeze on the initial cost at the sacrifice of quality of the job.

Very few clients have unlimited resources and no jobs have unlimited budgets but we have yet to find a client that is willing to buy trouble. We regretfully suggest that this is an area of control in which all segments of the industry—architects, engineers, contractors, builders, and material suppliers, should cooperate to educate the owner for the mutual advantage of all parties.

BOOKS

(Continued from page 41)

Elements of Materials Science; An Introductory Text for Engineering Students by Lawrence H. Van Flack. Reading, Mass.: Addison-Wesley Publishing Co., Inc., 1959. 528 pp., illus. \$8.50.

Intended as textbook for engineering students who have a general background of physics and chemistry, to acquaint them with the physical properties and behavioral characteristics of materials.

exhibits

Chairs from Machines, an exhibition of mounted photographs designed by George Nelson and Co., Inc., and available through Herman Miller Furniture Co., Zeeland, Mich. Consists of 12 panels, each 24 in. sq., mounted for easy installation. Available on loan basis.

Includes such classics as the Thonet bentwood chair, Alvar Aalto's laminated wood frame, the curved steel tube base by Marcel Breuer, and Charles Eames' and Eero Saarinen's molded shells.

films

Good Design produced by George Nelson and Co., Inc., available through Herman Miller Furniture Co., Zeeland, Mich. 35 mm., running time approx. 25 min. Available at \$17.50 for film and script. Preview prints available.

Devoted to concepts of good design in relation to contemporary furniture. Includes accompanying narrative text and suggestions for presentation.

Water repellent masonry fill insulation and its use available through Zonolite Co., 135 S. LaSalle St., Chicago, Ill., 1959.

Slide film which describes company's new water repellent masonry, covering: application sequences; technical data; and ideas on new types of wall construction.

Business and Professional Film Catalog published by Modern Talking Picture Service, 3 E. 54th St., N.Y. 22, N.Y. 14-page illustrated catalog, revised edition.

Specialized 16 mm.-sound motion pictures on new products, industrial processes and cost-saving techniques are listed. Films are available on free loan.

NAMES

DR. LEV ZETLIN, PE A practicing structural engineer for 21 of his 41 years, Dr. Lev Zetlin combines zest and imagination with thorough technical knowledge in his professional role. As a consulting engineer who seeks for the creative design solution, Zetlin believes in close collaboration between the architect and the engineer from the inception of a project.

"The collaboration should be fixed at an early point, which is not generally the case. The structural engineer should contribute special structural knowledge, not the basic idea. Then the architect and engineer should play with shapes which fulfill the functional needs. The structural design should be a creative one—not a dead one. There is too much of 'handbook' engineering and not enough originality. The design should be one which is safe, economical and which satisfies the judgment of the architect."

But, as Zetlin points out, creative design does not always make economic sense for an office. It involves more of the engineer's time and can often result in a structure which is more economical. More time is spent and the fee is smaller.

In Zetlin's work unique engineering solutions are evidenced. Among recent projects are: the U. S. Ambassador's residence in New Delhi, Edward Stone, architect; an hyperbolic paraboloid nuclear reactor dome, Philip Johnson, architect; the new Civic Auditorium in Utica, N. Y., Gehron & Seltzer, architects; and the Munson-Williams-Proctor Institute Art Gallery in Utica, N. Y., Philip Johnson, architect.

Before entering private practice, Dr. Zetlin engaged in research and teaching for five years. He is presently Visiting Professor of Civil Engineering at Manhattan College. Previously, he occupied the positions of Research Associate in Structures and Assistant Professor of Structural Engineering at Cornell University. He received his Doctorate and Master's degree in civil engineering at Cornell, majoring in structural engineering and minoring in soils engineering, foundations and applied mechanics.

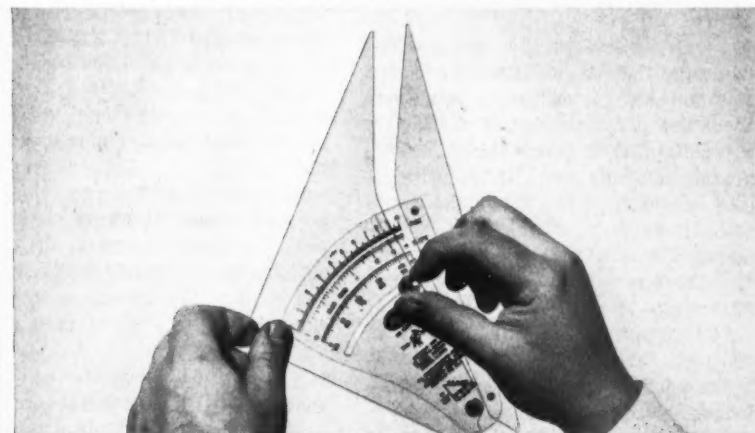
In his own practice of six to twelve men, Zetlin believes if growth in size should take place, it will be in the addition of men such as himself—who wish to combine academic work and private practice.

In appraising the educational program for engineers in the United States, Zetlin states that there is a tremendous need for improvement. "The course of study is too broad and superficial and there is not enough originality. Colleges are geared to 'meet the market'—large offices with mass production and chain manufacturing systems." He believes that not enough philosophy is taught to enable the engineer to know the whole structure and not just each member of it. And the little originality which the student has when he graduates is often smothered when he joins a large firm.

Looking at the role of the American consultant engineer in the future, Zetlin states that it must be more creative. "Engineers today are 30 years behind developments in building science. They don't utilize improvements in building research and construction materials. Unlike Europe, and especially Russia, where the engineer is ahead of the building science developments—here there is a lag, a reluctance to try new developments."



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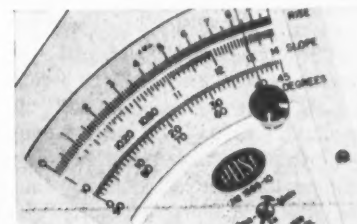
It combines the functions of a protractor and a triangle into a simple unit, with two fundamental trigonometric relationships of a right triangle. The Trig-Matk provides accuracy within 0.1% in problems dealing with any of the six trigonometric ratios of the sides of a right triangle.

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Examples

This new tool has a host of drafting and engineering applications. Highway designers find the Trig-Matk very useful when making cross sections of roadways at ground level or below. By



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setting the *Slope* scale to the degree desired, road-curve grades are automatically determined. The protractor can be used to determine the angle of highway ingress and egress lanes.

Structural Engineers will find the Trig-Matk Adjustable Triangle a simple tool, eliminating the use of both a scale and individual triangles. In addition to the time saved, many of the errors usually associated with the older method are avoided. The Trig-Matk design eliminates the need of frequent reference to handbooks for information on various bevels.

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ABSTRACTS

The future of design

From an address by Charles Luckman, AIA, president of Charles Luckman Associates, before the Massachusetts Building Congress, Inc., Boston, January 14, 1960.

"... In my view, the only concept of design that has a future is one that is comprehensive enough to bring into focus the entire process of putting up a building. That process must accommodate not only aesthetic appeal, but also the needs of the client, the limits of his budget, the engineering requirements, the legal and tax aspects, and the effect of social and economic influences. . . .

"Given progress toward peace, we can plan for an unprecedented future in responding to three major challenges already upon us: (1) the population explosion; (2) the surge of economic expansion; and (3) the ever accelerating rate of change in building needs, materials, tools and techniques. . . .

"The expansion ahead, just over the next ten years, will call for structures to serve a population of 220 million people in 1970—a 40 million increase. Our research department believes that the projected growth in the volume of building will bring it to an \$85 billion a year level in 1970 as compared with \$62 billion in 1959. That \$85 billion a year will comprise an 11 per cent of a Gross National Product estimated at \$800 billion a decade hence. During the 1960 to 1970 period, our analysis indicates that the total anticipated outlay for building can be conservatively put at \$650 billion. In the United States this year, we will embark upon the greatest building boom the world has ever seen—as part of what will rightfully be called the 'studendous sixties.' . . .

"Looking ahead only half a lifetime to the year 2000, we can foresee a population of at least 350 million people. Moreover, if we are to achieve the 5 per cent economic growth a year required merely to keep pace with Soviet economic expansion, we must reach a Gross National Product—measured in today's dollars—of \$3,000 billion. And at the same time, the automated work week will be down to 20 hours, a doubling of today's leisure time. . . .

"Certainly, as the architect glimpses the silhouette of this emerging civilization, he can anticipate the greatest

challenge and opportunity ever to confront his profession.

"The immediate future calls, more than ever before, for architects who understand that architecture is for people. There is less room than ever before to accommodate art for the architect's sake. Design must be approached in the totality of its aims; as a venture in creative problem-solving with recognition that, while design is important, it is only one phase among many in the process of building.

"The architect therefore, has to be a combination of planner, artist, engineer, businessman, administrator and sociologist. He should be as skilled in controlling budgets and methods as in communicating the conceptual. He is up against the difficult task in interpreting to 1960 clients the ramifications of the 1970 environment.

"He will have to emphasize planning in all of its aspects as never before. This goes for the building itself, as well as the way it is fitted into its setting. For example, today's grotesque and unplanned suburban sprawl must give way to plans for space and grace in cities which reflect the 'humanation in architecture.'

"Surely we are not to be judged, or judge ourselves, merely by our capacity to use brick and mortar, glass and steel. Rather, our use of materials, like the use of our skills, should be measured only by the yardstick of human needs and aspirations. Unless these are served, a building, no matter how beautiful, will deny the importance of the human being by failing to consider that buildings are for people—and must therefore be planned, designed and built to embody the visual and aesthetic values of the human scale.

"While I will have nothing to do with a project which is deficient in fine design, I do insist that fine design alone does not suffice either today or tomorrow. For the decision to build is fundamentally a carefully weighed business decision. The architect, therefore, has the many-sided responsibility of planning a structure that will be economically viable, will be a credit to the owners and to the community, and will be a fusion of beauty with utility.

"To carry out this total responsibility, the architect must see clearly the connection between a tight money market and the need for accurate cal-

culations of building costs. He must be able to make dependable budgets and stay within them, not only for the sake of his client, but to maintain his own reputation, and to avoid personal bankruptcy. A growing number of legal decisions are holding the architect to account for having the contract bids come within the original budget specified by the client—even in cases where such commitments to do so were purely verbal. Other recent court decisions have upheld the right of the owner to refuse to pay the architect's fee as a forfeiture for his failure to design, plan and engineer a building within the agreed-upon budget. Moreover, many municipal and county authorities are now writing into agreements a strict compliance with cost estimates and requiring the architect to re-do the final working drawings, at his own expense, if the bid price is higher than the budget. All of this underscores the need to do a big job of air-conditioning our minds—to blow away the cobwebs of encrusted habits.

"One way to help do this would be for the American Institute of Architects to reactivate and intensify a share-the-knowledge program about

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building costs. Much as the medical profession systematically shares knowledge on disease control, so our profession, years ago should have initiated a pool-the-knowledge program on cost control. If we had done so, I venture to suggest that we would not now be losing out on two-thirds of the nation's construction program. . . .

"In all of our activities we are learning—to an ever-increasing extent—that the architect cannot be regarded solely as a specialist. He is, rather, a combination of special abilities which make him a 'generalist,' capable of coordinating the work of many specialists. . . .

"The wide range of architectural requirements . . . raises this question: how many architects are being properly educated to qualify as master planners, as architectural leaders of the team effort?

"Everyone agrees on the crucial importance of proper education for the architect. Everyone agrees that our formal learning and apprenticeship procedures leave much to be desired. But on what to do about it there is wide disagreement. . . .

"As to my own view. I suggest that no plan for improving formal educa-

tion makes sense unless it rests upon the premise that the life of the architect is one long pursuit of learning. I do not mean merely learning from daily experience. I mean systematic study to broaden continuously the base of his knowledge and to sharpen his insight.

"So I should like first of all to propose that we intensify and multiply refresher courses, seminars and institutes to enable the practitioner to grow in capability. He needs this regular return to the academic climate to invigorate his thinking and to help keep him abreast of new findings, both sociological and technological.

"Second, the period for formal education should be extended. I favor the idea of eight years of training beyond high school, as advocated in last month's [December's] issue of the *AIA Journal*. This should include four years of liberal education with a major in architecture, leading to a bachelor's degree, followed by two years of internship in an architectural office. Such a program should culminate in a two-year master's degree in architecture—and automatic registration to practice. I believe that this must be done if architecture is to prosper or

even survive, as a learned profession.

"Third, I would recommend that architects, as cultural agents, as civic leaders, as members of their professional groups, press for improvement of the quality of education in college and university. Let us act vigorously to increase the supply of superior teachers. Let us also make ourselves available for part-time teaching assignments, so that the practical and theoretical can be fused as much as possible.

"Fourth, I urge the wider and better utilization of business leaders as visiting lecturers in architectural schools. This is a practical way to stimulate fresh thinking and generate broader vision.

"Fifth, I call upon architects, engineers, contractors, suppliers, labor leaders and educators to unite in a new cooperative effort to encourage youth with aptitude to prepare for careers in building. I would hope that your organization, the Massachusetts Building Congress, might sponsor a 'pilot' career incentive program in the schools of this state—a program which could set the pace and pattern for a national careers-in-building approach to youth. The challenge I have de-

scribed can only be met with trained talent. Our job is to seek it out and support it.

"Finally, may I submit for consideration by our profession a new kind of Fellowship program for architects. It should provide for the more mature architect, whose five or ten years of practice have shown genuine promise, an opportunity to supplement his experience with a year of further academic study. During that time, he would receive a generous grant similar to the financial support furnished by the Nieman Fellowships for journalism at Harvard University.

"These Fellowships in architecture would bring together a group of exceptionally gifted practitioners for a year of mutual stimulation and advanced or special studies. My own hope would be that the recipients of such Fellowships would concentrate upon the social sciences and the humanities, as much as upon the physical sciences and mathematics. . . .

"May I conclude by offering five precepts which might serve as a starting point in developing a contemporary credo for the American architect:

"(1) We will be tithers of our time, giving 10 per cent of our years to active participation in community affairs, whether civic, cultural, or charitable—local, regional or national.

"(2) We will seek the mutually beneficial balance of interests between the client and the community by combining planning ability with aesthetic sensibility.

"(3) We will make a life-long quest for knowledge an act of faith in architecture as a learned profession capable of giving form and meaning to the ideas and ideals of our civilization.

"(4) We will strive to qualify ourselves as leader of the team by being sympathetic to, and knowledgeable of, all the disciplines which are required for the total concept in architecture.

"(5) We will nurture in our profession a deep and mature concern for human beings by heeding the aspirations of all people who want to work in concert, walk in dignity, and live in freedom.

"In acting upon such a credo, the architect must be willing to accept the penalties, as well as the privileges, of leadership.

"This is, indeed, a small price to pay for the opportunity of being a participant in the design of our emerging civilization—in the design of our American future."

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ON ARCHITECTURAL CRITICISM Recently this writer was privileged to attend a stimulating symposium entitled, "Architectural Criticism—Good or Evil?" Conducted under the auspices of the New York Chapter of the AIA, the program offered an outstanding panel consisting of Terry Ferrer, New York *Herald Tribune* Educational Director; Russell Lynes, Managing Editor of *Harper's Magazine* and author of the *Tastemakers* and *Snobs*; James Johnson Sweeney, Director of the Guggenheim Museum and Douglas Haskell, AIA, Editor of *Architectural Forum*. Each of the discussants stated his position from the standpoint of his area of specialization. I would like to summarize their comments briefly and then offer the drumfire of a few personal observations as an adjunct to the subject.

Miss Ferrer felt her function as necessarily reportorial—i.e., a relatively neutralist position. She considered her work as primarily one of communication with a metropolitan newspaper readership whose concern was focused on those issues dealing with education, teaching personnel and school plant facilities. She outlined the relationship of architects to some of the negative criticism of school buildings which has adversely affected voting for bond issues in many communities.

Russell Lynes approached the symposium question as one in which the architect has a *cultural* involvement. Therefore, his architecture, apart from its artistic merit, was to him, essentially a sociological statement. In briefly surveying the field of current architectural criticism, Lynes stated the need for more critics with better personal preparation in this highly specialized field of criticism. He noted that since the professional ethics of architects precluded criticizing each other, the function of criticism fell upon persons like himself—whom, in his view, were not necessarily the best equipped to discharge this task.

According to James Johnson Sweeney, architectural criticism should be a total "examination"—an almost clinical approach in which a copious assembly of many factors would provide an adequate review of a work in order to arrive at his personal standard of a "pure" architecture.

Mr. Haskell defined his outlook on the subject as one of setting forth a case history of a completed project—wherein it may be measured against prevailing aesthetic standards for architecture.

Other general points made were to the effect that the architect should bear up under a not-too friendly review of a completed project in the same manner that the Broadway producer endures theatrical opening night reviews or those that the painter or sculptor encounter with a gallery showing. This is questionable in view of the fact that the producer has recourse to theatre-page advertising to offset the impact of an unfavorable press. A theatrical production, ephemeral

and transitory in character, may be modified, re-directed or withdrawn to avoid a sure disaster. In the case of the painter or sculptor, he possesses his own work intact and at the moment of a gallery showing, his works are offered for sale. The showing is advertised, exhibited and promoted as effectively as good taste and resources will permit. Other forms of art, such as music and dance receive direct and indirect community subsidies to offset the anticipated seasonal deficit.

Distinct from these others, the architect is not in this position at all. Unless he were willing or able to develop a project at his own expense, he has no recourse but to wait for a client to approach him and utilize his *services* for a specific program. Only then can his talents bring a creative work into *being*. One can understand the sensitivity of the architect to the subject of criticism—since his professional reputation and therefore his capacity to function at all is at stake every time—*before* the fact and not after it!

The architect, unlike other artists, must of necessity maintain a highly complex and expensive administrative and technical organization—in order to competently function as a professional. (Need we mention the hazards of professional liability as reflected in errors and omissions insurance?)

Moreover, architecture—as represented in a completed building or complex of buildings—is the hardest and most absolute discipline of all creative art expression. Architecture demands and is infused with a host of criteria requiring aesthetic, scientific, sociological, ecological attitudes and managerial abilities. It cannot be considered purely as an aesthetic product alone. To formulate criticism on the principle of aesthetic response alone isolates the object from an intelligent comprehension or indicates a reviewer's unawareness or deficiency of scholarship in this area. Too often, these factors are dismissed lightly as the winds of aesthetic doctrine blow hot and heavy.

Architecture, as an art form, has the longest history reaching back into time with the primordial need for shelter. Today it is a physical reflection of the impact of 20th century technology—in its totality—with its victories and its failures. Its executive creator directs and coordinates the talents and skills of many specialized individuals. This process involves a significant amount of money—carefully committed through prudent fiscal procedures and for which the architect assumes a high responsibility. Often for a variety of complicated factors: client relationships; material and labor markets; etc., he is delimited from a full realization of his architectural conception. This is a *reality* of professional practice. Of course, mediocrity in design and planning may be rationalized as an exigency of active practice. Conversely, often there is a significant psychological and intellectual discrepancy between

the poverty of the client's aesthetic standards and the richness of his bank account.

Therefore, one may reasonably argue that there is a need to delimit or re-define the nature of a contemporary architectural criticism. Ours is an open society and diversified responses as to what constitutes an architectural criticism are all to the good. It would be interesting someday to *think through* a reasonable system of criteria for an adequate criticism. One should be able to cull fact from fiction—thought from intuition—objective sense from pre-ordained choice. Criticism of architecture, unlike other arts and sciences, does not yet fully possess an epistemology for this purpose. Yes, we have Berenson, Croce, Burkhardt, Wofflin, Panofsky, Mumford, *et al*, but they are drawn from the world of philosophical disciplines as historians and theoreticians of the aesthetic. Too often one finds esoteric judgments wherein critics write for each other—reinforcing and insulating their prejudices as a *mystique*, full of cant and at a sacrifice of being genuinely informative.

This writer is pre-disposed to a more scientific examination of architectural elements wherein one's assumptions are directly stated, delimitations set forth, and where data brought to the subject is qualified and systematized in presentation. Perhaps in this manner, one may sift fact from attitude.

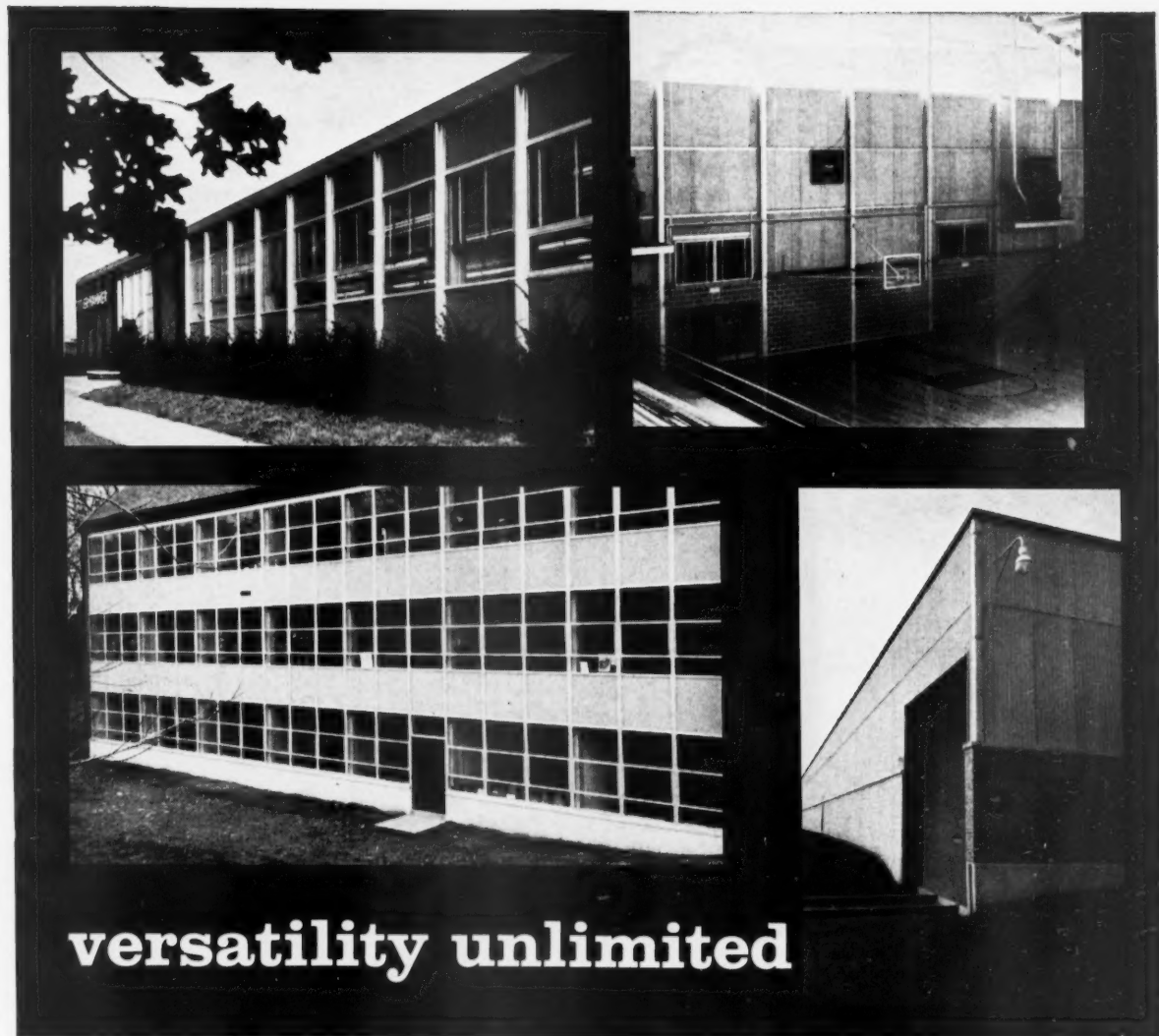
Architecture will flourish when it gains the wide-spread, spirited and personalized interest enjoyed by other arts. They are experiencing a renaissance or popularization heretofore unknown in the history of this nation. Some argue that "popularization" is a dilutive or watering-down process, and therefore, a vulgar one. A broadened public forum for architecture can only benefit the profession. If it seems remote, detached, people will not understand it. What they do not understand, they will reject. A continuing incestuous preachment of architecture to architects alone spells out a professional isolation.

Architectural criticism (as distinct from a design critique) may be looking through the wrong end of the telescope. To produce a greater and more meaningful architecture, the education and enlightenment of a greater and more demanding audience is necessary. A sweeping oversimplification—yes! One established aim of education has always been the *improvability* of things—even of critics (including myself) and of criticism!

To conclude in a lighter vein, the poet Mildred Howell provides a wonderful thought in "The Difficult Seed:"

*"And so it criticized each flower,
This supercilious seed;
Until it woke one summer hour,
And found itself a weed."*

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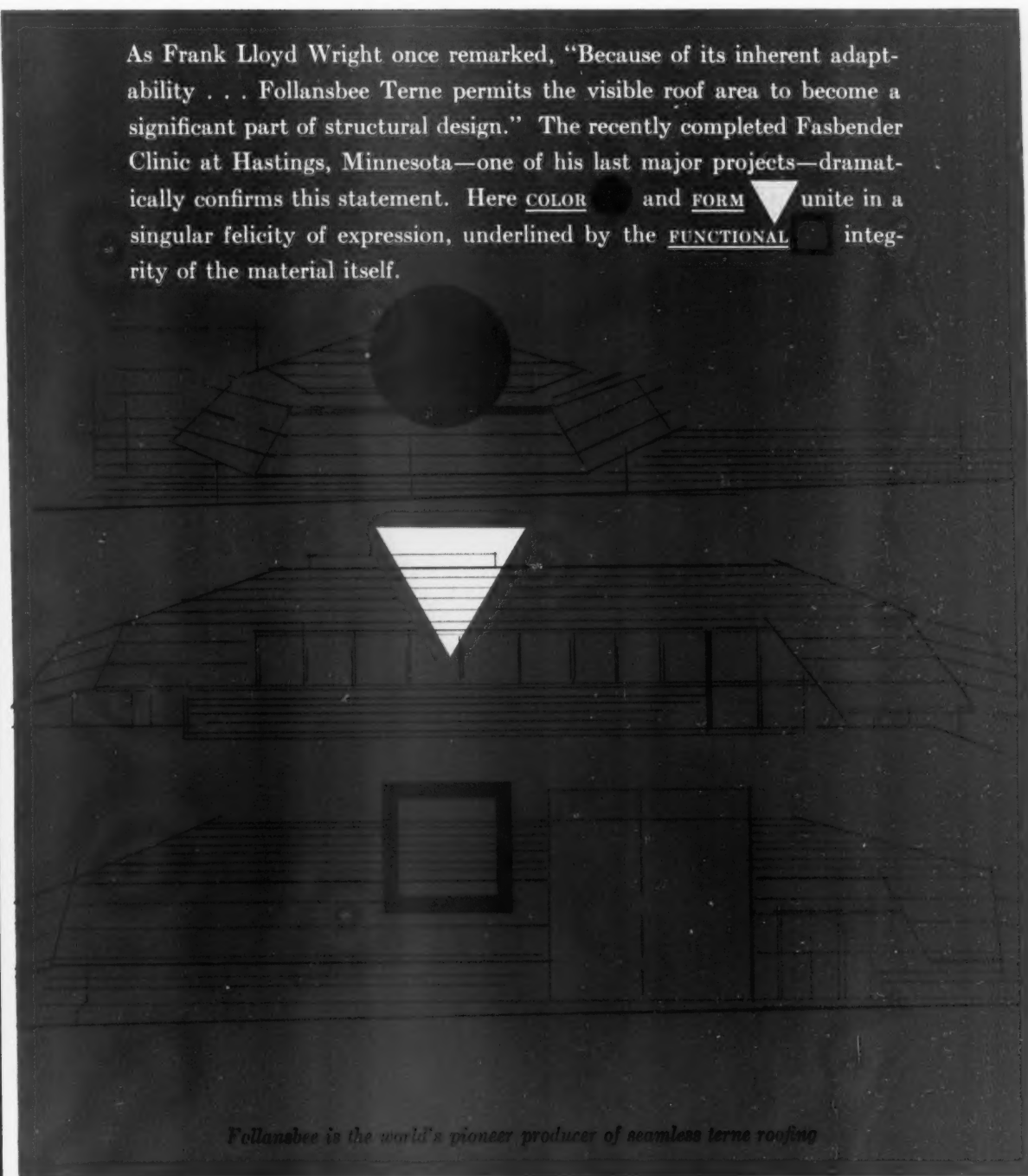
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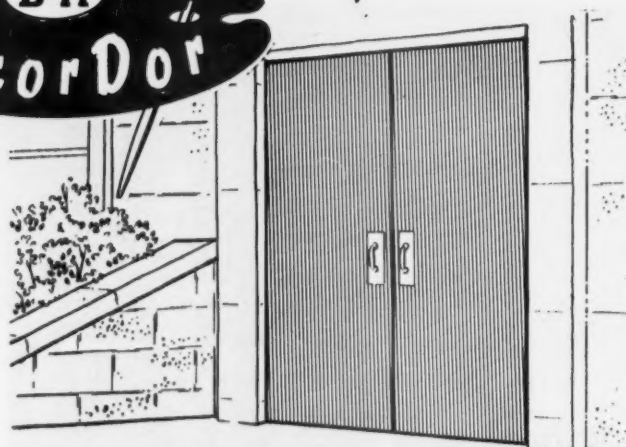
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